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Clean Harbors Kansas, LLC
RCRA Permit Application
Part B

Volume 2 of 3

RCRA



551114

Submitted To:
State of Kansas Department of Health and Environment
And
United States Environmental Protection Agency – Region VII

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Revision No. 10
May 19, 2008

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List of Acronyms

Clean Harbors Kansas, LLC (CHK)

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E-1 Introduction:

Clean Harbors Kansas, LLC intends to effect partial closure on Building D, and all of the storage tanks located within Building D. Additionally, Clean Harbors Kansas, LLC intends to effect partial closure on all of the miscellaneous process equipment currently located in Area P 200 in the Process Building. In all, CHK intends to remove twelve (12) tanks from service.

The purpose of this section is to provide information regarding the design, installation, and operation of the various tank systems at the Clean Harbors Kansas, LLC facility which will remain in RCRA service. This information is provided to fulfill the requirements of Kansas Administrative Regulations (KAR), Title 28, Article 31 as well as federal regulations as set forth in 40 CFR Part 264 Subpart J, and 40 CFR 270.16. The KAR incorporate, with few additions, the RCRA regulations contained in 40 CFR 260 through 270. Therefore, this section will refer only to the federal regulations. Clean Harbors Kansas will submit a revised Section E, within 60 days of May 19, 2008, and formal closure plans for all process units and storage tanks covered in Section E. CHK is currently in the process of having the nine (9) storage tanks which will remain in service in the Process Building inspected by a professional Engineer to certify that the tanks are in good condition. The results of these inspections will be incorporated into the next version of this Part B Application.

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A variety of tank systems are used at the Clean Harbors Kansas, LLC facility. Tanks are used to store and/or treat liquids, solids, and sludges. There are eight (8) waste storage tanks with a total permitted capacity of 83,179 gallons at the facility. Additionally, tank V-17 (capacity 577 gallons) is in use as a gasoline fuel storage tank to support site operations. Individual tank capacities, dimensions, and tank system locations are summarized on Table E.1, Hazardous Waste Storage Tanks. Each of these tank systems is addressed in detail in the following pages.

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| Table E.1 Hazardous Waste Storage Tanks | | | | |
|--|--------------------------|----------------------|---------------|--------------|
| VESSEL | CAPACITY - WORK (gal) | CAPACITY - MAX (gal) | DIMENSIONS* | LOCATION |
| V-1 | 7,181 | 7,363 | 8'0"x 26'7"V | Process Area |
| V-2 | 7,084 | 7,084 | 8'0"x 18'10"V | Process Area |
| V-3 | 7,181 | 7,363 | 8'0"x 26'7"V | Process Area |
| V-4 | 7,181 | 7,363 | 8'0"x 26'7"V | Process Area |
| V-5 | 20,095 | 20,095 | 12'0"x 25'7"V | Process Area |
| V-6 | 20,095 | 20,095 | 12'0"x 25'7"V | Process Area |
| V-7 | 7,181 | 7,363 | 8'0"x 26'7"V | Process Area |
| V-8 | 7,181 | 7,363 | 8'0"x 26'7"V | Process Area |
| V-17 | 577 | 577 | 3'4"x 8'0"H | Process Area |
| TOTAL | 83,756 | 84,666 | N/A | N/A |

*Dimensions are given in feet and inches. The first dimension is the tank diameter and the second dimension is the length, followed by a 'V' for vertical tanks or an 'H' for horizontal tanks.

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E-2 Description of Tank Systems: 40 CFR 270.16(a),(b),and(e), 264.192 (a)

The purpose of the following discussion is to describe the design and operation of the various tank systems at Clean Harbors Kansas, LLC. Certified tank assessments by an independent, qualified, registered, professional engineer as required by 40 CFR 264.192(a) are presented in Appendix E-A, Tank System Assessments and Certifications. Appendix E-A includes tank certification statements, tank containment certification statements, compatibility of wastes with tank materials, tank system field notes, and examples of containment coatings. Individual tank drawings are provided in Appendix E-B, Tank Drawings.

Figure E.1, Hazardous Waste Management Areas (Figure E.1, Hazardous Waste management Areas in Section Y), indicates the general location of the tank management areas in relation to the other portions of the facility. Figure E.2, Process Building, shows the location of the individual tanks within the tank management areas. Piping and instrumentation diagrams, and process flow diagrams are presented in Section N, Air Emissions.

RCRA hazardous waste, as well as a variety of non-hazardous wastes, may be managed in the different tank systems. A list of RCRA waste codes acceptable for storage or treatment in the tank systems are provided in Section A, Part A Permit Application. Any waste code listed in the Part A may be handled in any tank at the facility. In general, tanks V-1 through V-8, and V-17 are located within the Processing Area and have a total working capacity of 83,756 gallons.

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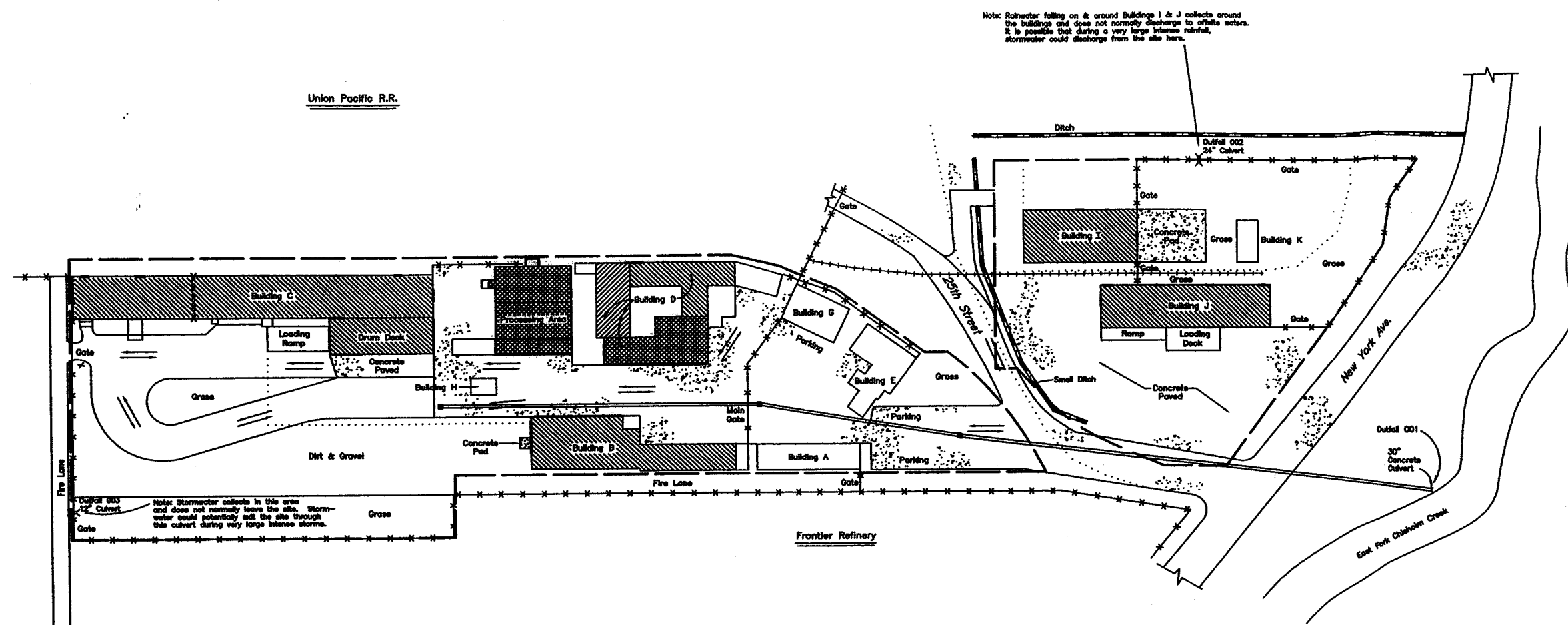
Materials stored or treated in these vessels are ignitable and non-ignitable, hazardous and nonhazardous liquids and sludges.

The secondary containment systems for Clean Harbors Kansas, LLC's tank systems are designed such that no external shell of any tank, nor any external metal component of a tank will be in contact with soil or standing water (i.e., sloped containment, elevated systems, etc.). As a result of design criteria and operational procedures, the requirements of 40 CFR 264.192 (a)(3) (corrosion expert assessment) are not applicable. As required by 40 CFR 264.193 (c)(4), any accumulated precipitation in a secondary containment system will be removed within twenty-four (24) hours of detection, or in as timely a manner as possible.

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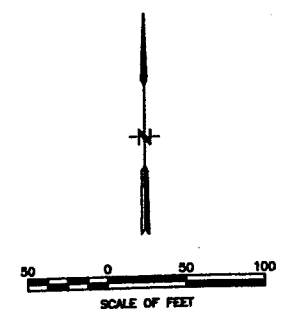
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Figure E.1, Hazardous waste Management Areas



- Building Legend**
- Building A Laboratory/Administration
 - Building B Hazardous Waste Management Building
 - Building C Hazardous Waste Management Building
 - Building D Hazardous Waste Management Building
 - Building E Administration
 - Building G Personnel Decon/Break Room
 - Building H Operations Office
 - Building I Hazardous Waste Management Building (Future Use)
 - Building J Hazardous Waste Management Building (Future Use)
 - Processing Area Hazardous Waste Management Area
 - Drum Dock Hazardous Waste Management Area

- Legend:**
- : Railroad Tracks
 - x-x-x- : Fence
 - : Property Line
 - ||||| : Container Storage Area
 - ||||| : Tank Storage Area
 - ||||| : Container and Tank Storage Area
 - ===== : Loading and Unloading Area
 - ===== : Secondary Containment Berm or Wall
 - ||||| : Pavement
 - : Drainage Boundary
 - : Storm Drain Catch Basins
 - ===== : Underground Storm Sewer Line
 - ===== : Truck Routes



| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|--|------|--|--------------------|--|--------|--|------|--|-------|--|------|--|--------|--|-------|--|------|--|-------------|--|------|--|
| REFERENCE DRAWINGS | | A | | UPDATED APRIL 2008 | | K.M.C. | | DATE | | APPR. | | BY | | K.M.C. | | SCALE | | DATE | | DRAWING NO. | | REV. | |
| | | REV. | | DESCRIPTION | | DATE | | DATE | | DATE | | DATE | | DATE | | DATE | | DATE | | DATE | | DATE | |

CLEAN HARBORS KANSAS, LLC

Hazardous Waste Management Areas

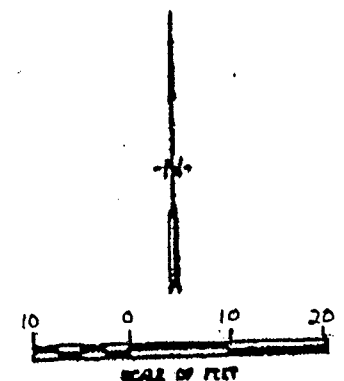
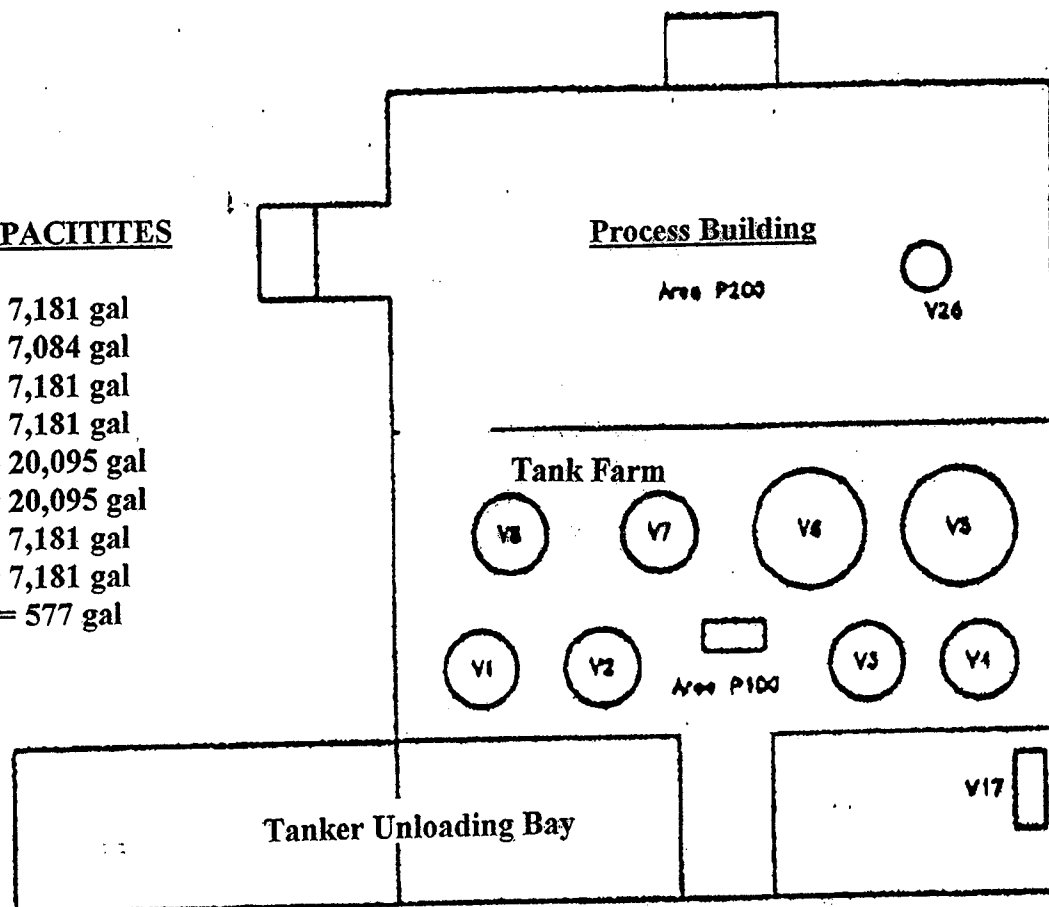
Figure E-1

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Figure E.2, Process Building

TANK CAPACITIES

Tank V1 = 7,181 gal
Tank V2 = 7,084 gal
Tank V3 = 7,181 gal
Tank V4 = 7,181 gal
Tank V5 = 20,095 gal
Tank V6 = 20,095 gal
Tank V7 = 7,181 gal
Tank V8 = 7,181 gal
Tank V17 = 577 gal



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E-3 Operational Practices: 40 CFR 270.16(c),(i),(j), 264.194, 264.198, 264.199, 264.195

The following information is supplied to meet the specific requirements of RCRA regarding tank operating practices.

E-3a General Operating Requirements: 40 CFR 270.16(i), 264.194

Any material that could cause the tank, ancillary equipment, or secondary containment systems to fail (i.e., rupture, leak, etc.) will not come into contact with the tank systems. Assessments for compatibilities of wastes with tank system materials are presented in Appendix E-A of this section.

Clean Harbors Kansas, LLC will use the appropriate controls and practices to prevent spills and overflows from tanks and containment systems. Spill prevention controls may include check valves, dry disconnect couplings, vacuum or gas purge, permanently fixed or mobile catch pans, and secondary containment around the activity. Overfill prevention controls include level sensing devices, high level alarms, an automatic pump activated by a float sensor, overfill bypass to another tank, and/or visual inspections during transfer. The control systems for the various tank systems are shown in the Piping and Instrument Diagram (P&ID)s provided in Section N, Air Emissions. Tank systems in hazardous waste service have, at a minimum, the following overflow protection systems:

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- Secondary containment with chemical resistant coating,
- Automatic high level alarms on each individual tank, and
- Manual gauging ports.

Automatic level gauges are provided on some tanks and may be used in addition to the protection systems listed above. Adequate freeboard will be maintained in open top tanks to prevent liquids from blowing out of the top of the tank.

E-3b Description of Feed Systems, Safety Cutoff, Bypass Systems, and Pressure Controls: 40 CFR 270.16(c)

Descriptions of the feed systems, safety cutoffs, bypass systems, and pressure controls are provided below for the tank systems, additional information (including P&ID drawings) can be found in Section N, Air Emissions.

E-3b(1) Feed Systems, Safety Cutoff, and Bypass Systems:

Automatic and manual level detection systems on all tanks are monitored each operating day material transfer to or from tanks takes place. Valves and pipe manifold stations are used to control flow to and from tank systems. Some tank system piping also incorporates check valves for added flow control safety. Tank systems can be isolated (by valves) from waste

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flow. Refer to Section N, Air Emissions for detailed P&ID drawings showing piping and valves.

E-3b(2) Pressure Controls:

The tank systems at Clean Harbors Kansas, LLC have pressure and vacuum relief valves, or are vented to the atmosphere directly. Tanks V-1, V-3, V-4, V-7, and V-8 are low pressure tanks installed with pressure and vacuum relief valves set at approximately 14.5 pounds per square inch gauge (psig) pressure and approximately 0.5 ounce per square inch vacuum. In the event of a relief, these tanks are vented directly to the atmosphere. Tanks V-2, V-5, V-6, and V-17 are closed top atmospheric tanks equipped with thief hatches with pressure relief set at approximately 2 ounces per square inch and vacuum relief set at 0.4 ounce per square inch. In the unlikely event of a relief, these tanks vent directly to the atmosphere.

As the newly proposed second phase of the air emission standards for hazardous waste facilities becomes final, Clean Harbors Kansas, LLC will address and implement appropriate air emission control devices for the affected tank systems.

E-3c Special Requirements for Handling Incompatible, Ignitable, or Reactive Waste: 40 CFR 270.16(j), 264.198, 264.199, 264.17(b)

Proper precautions are and will be taken (when managing ignitable or reactive wastes, or mixing incompatible wastes or incompatible wastes and other materials) to prevent reactions which: 1)

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generate extreme heat or pressure, fire or explosion, or violent reactions; or 2) produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment. Wastes exhibiting the characteristics of reactivity will not be placed in any of the tank systems located at the CHK facility unless the waste is treated, otherwise managed, or mixed before or immediately after placement into a tank system so that:

- the resulting waste, mixture, or dissolved material no longer meets the definition of reactivity; or
- the waste is stored or treated such that it is protected from any material or conditions that may cause the waste to ignite or react; or
- the tank system is used solely for emergencies.

Tanks designated to accommodate storage of wastes exhibiting the characteristics of ignitability and reactivity will comply with the requirements for the maintenance of protective distances between the waste management area and any adjoining property lines as outlined in the National Fire Protection Association (NFPA) "Flammable and Combustible Liquids Code" (1977 or 1981). Water and/or foam fire suppression systems are also located where required by NFPA regulations. Smoking or open flames will not be permitted in the vicinity of these tank systems. "No Smoking" signs are conspicuously placed wherever there is a hazard from ignitable or reactive waste.

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Incompatible wastes or incompatible waste and material will not be placed in the same tank system for storage. A compatibility analysis will determine whether a waste meets the compatibility criteria for storage in a tank system. The procedures for this analysis are outlined in Appendix C-A, Waste Analysis Plan (WAP) located in Section C, Waste Characteristics, and will be performed when necessary to ensure that incompatible wastes or incompatible waste and material are only placed in the same tank system under controlled circumstances. There may be instances where an incompatible waste is used as a reagent to treat another waste in a tank, under controlled circumstances. Additionally, hazardous waste will not be placed in a tank system that previously held an incompatible waste or material unless compliance with 40 CFR 264.17(b) is demonstrated. Certifications for Compatibilities of Wastes with Tank Materials are located in Appendix E-A.

E-3d Inspections: 40 CFR 264.195

A list of inspections performed for the various tank systems is provided in Section F, Inspection Plan. Clean Harbors Kansas, LLC will document the results of these inspections in the operating record to be kept at the facility for a minimum of three years. CHK is currently in the process of having the nine (9) storage tanks which will remain in service in the Process Building inspected by a professional Engineer to certify that the tanks are in good condition.

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E-3e Contingency Measures: 40 CFR 264.196

A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, will immediately be removed from service and Clean Harbors Kansas, LLC will comply with the applicable requirements listed in 40 CFR 264.196. The Contingency/Emergency Plan (Section H), contains procedures for responding to a situation where there is a leaking or an unfit-for-use tank system.

E-3f Tank Cleaning for Non-Hazardous Waste Service

Tanks that have been in hazardous waste service are cleaned prior to non-hazardous waste service. This cleaning procedure will consist of the following steps:

- remove wastes from tank systems by draining and/or pumping;
- flush hoses and piping by pumping an appropriate detergent or solvent in a volume roughly equivalent to the total volume of the pipe or hose; and
- remove residuals by pumping, scraping, brushing, and/or washing, as necessary.

When visual inspection of the tank shows no evidence of contamination, the tank system is considered to be available for non-hazardous waste or product service. The above procedures,

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while not intended to close a tank, will make it available for non-hazardous waste management.

In some circumstances, Clean Harbors Kansas, LLC may opt to store non-hazardous wastes in a tank that previously held hazardous wastes, without first cleaning that tank. Under these circumstances, Clean Harbors Kansas, LLC will manage the non-hazardous wastes as if they are hazardous, in accordance with the mixture rule (40 CFR 261.3(b)).

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E-4 Containment and Detection of Releases: 40 CFR 264.193, 270.16(g)

Secondary containment systems for tank systems are designed, installed, and operated to prevent migration of wastes or accumulated liquid to the soil or groundwater. The containment systems enable the detection of, and collection of, releases and accumulated liquids. Liquids accumulated in a CMU will be removed from containment systems within 24 hours or as soon as practicable.

Secondary containment systems for tank systems consist of concrete slabs surrounded with concrete walls or dikes of appropriate height. The containment systems are sloped or tanks are constructed above the floor to facilitate detection of any released material or other liquid.

Accumulated liquids will be removed and managed appropriately. Each area has been designed to surround the base of the tanks and cover the surrounding earth most likely to come into contact with a release of waste. These design and operating factors are, in combination, capable of preventing potential lateral and vertical migration of hazardous waste constituents. The secondary containment systems have been designed to have sufficient structural strength and thickness to minimize the potential of failure owing to pressure gradients, physical contact with waste, climatic conditions, and the stress of daily operations. Additionally, the foundations will provide resistance to pressure gradients above and below the system, and will minimize the potential for failure due to settlement, compression, or uplift.

Prior to placing a tank in hazardous waste service, the associated secondary containment system

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(slab, walls, dikes) will be coated with a sealant to protect the containment surface against chemical attack. The secondary containment systems consist of a liner (sealed concrete) that is free of cracks or gaps. Types of containment coatings previously used at Clean Harbors Kansas, LLC include Siloxirane, Sentry Polymers Semstone 245 or other Clean Harbors Kansas, LLC approved coatings that are effective against chemical attack and/or mechanical abuse. Appendix E-A contains secondary containment certifications for tank systems that are in service and coating specifications of the aforementioned coatings.

Tank system containment areas are inspected each operating day for the presence of liquids. Inspections will enable facility personnel to determine if failure of a tank or containment structure has occurred. Tank systems are either designed and constructed up and off the containment floor, provided with leak detection systems, or the containment area is sloped for ease of visually detecting leaks or spills. The design of tank system containment areas, in conjunction with facility inspections, facilitates the detection of accumulated liquids.

Accumulated liquids collected in the secondary containment system will be removed within 24 hours or soon as practical, and managed according to the procedures described in the WAP as outlined in Section C, Waste Characteristics.

Ancillary equipment (e.g., pumps) associated with the various tank systems are located within the tank systems' secondary containment areas, within secondary containment areas for pumps, or

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within the containment area of an associated loading/unloading area. Therefore, sufficient secondary containment is provided for the ancillary equipment. All piping utilized for transfer of hazardous waste to and from the various units is above-ground and is inspected each operating day for leaks or damage.

Tank system secondary containment areas have been designed to provide sufficient capacity to contain 100 percent of the capacity of the largest tank within their boundaries or 10 percent of the total capacity of tanks and containers, whichever is greater. Also, each containment area has been designed (e.g., with berms, building walls, storm sewer, etc.) and is operated in a manner to prevent run-on. Tank systems are provided with roofing to minimize infiltration of precipitation.

Adequate containment is provided to manage the volume of incidental blown precipitation.

Tank system secondary containment capacity calculations and certifications are provided in Appendix E-A. Containment capacities for areas containing tanks or tanks and containers, are summarized in Table E.2, Tank System Containment Details. As shown in the table, the containment capacity provided by each containment area is greater than the capacity required.

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| Table E.2 Tank System Containment Details | | | | | |
|--|--|-------------------------------------|--------------------------------------|--|---|
| LOCATION | NUMBER OF TANKS & CONTAINERS & GALLONS EACH | CAPACITY REQUIRED (gallons) * | CAPACITY AVAILABLE (gallons) * | SECONDARY CONTAINME NT DESCRIPTIO N | GENERAL UTILIZATION |
| Processing Area P100/P200 | 5 @ 7,181 1 @ 7,084 2 @ 20,895 1 @ 522 1 @ 1,129 180 @ 55 | 20,095 | 32,583 | Coated concrete walls/slab under a roof | Storage of non- ignitable and ignitable hazardous and nonhazardous liquids |

* Capacity calculations are provided in Appendix E-A

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E-5 Installation of Tank Systems: 40 CFR 270.16(f), 264.192(b)-(g)

Prior to placing any tank system in service, an independent registered professional engineer or qualified inspector will inspect for the presence of:

- Weld breaks,
- Punctures,
- Scrapes of protective coatings,
- Cracks,
- Corrosion, or
- Any other structural damage or inadequate construction/installation.

All such discrepancies will be remedied, and tank assessments in compliance with 40 CFR 264.192 will be performed, certified, and documented, prior to use. Appendix E-A provides Certified Tank Assessments, including secondary containment design and capacity calculations, compatibility assessments, and field notes. Appendix E-B provides drawings and construction specifications for the individual tanks.

Minor repairs (e.g., piping or valve replacement) will be performed at the facility and tightness tested before the tanks are returned to service. Tank systems will be removed from service when major repairs are required. The method of repair will depend upon the nature and extent of the

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defect. Major repairs may require that the tank be removed for repair and/or sent to the manufacturer for modifications. Tank systems requiring major repairs will be recertified by an independent professional engineer prior to being placed back into service.

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E-6 Closure: 40 CFR 264.197

Final facility closure (i.e., closure of all waste tanks on site) or partial closure of a selected tank system will be performed as outlined in Section J, Closure Plan.

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Appendix E-A

Tank System Assessments and Certifications

Attachment 1, Tank Certification Statements

Attachment 2, Tank Containment Certification Statements

Attachment 3, Compatibilities of Wastes with Tank Materials

Attachment 4, Tank System Field Notes

Attachment 5, Examples of Containment Coatings

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Appendix E-A - Tank System Assessments and Certifications

Attachment 1, Tank Certification Statements

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Appendix E-A - Tank System Assessments and Certifications

Attachment 1, Tank Certification Statements

July 25, 1997
Revision No. 8

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

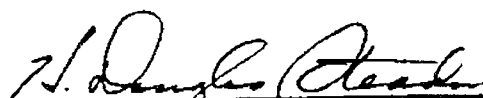
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

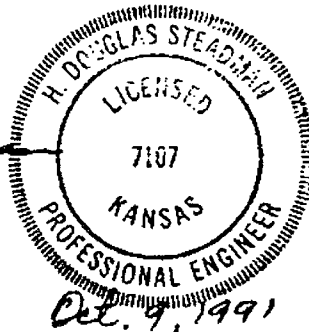
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-1 have been adequately designed and the tank system V-1 has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-1 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-1 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-1 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-1, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

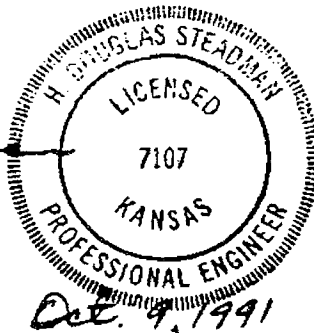
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-2 have been adequately designed and the tank system V-2 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-2 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-2 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-2 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-2, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,084 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

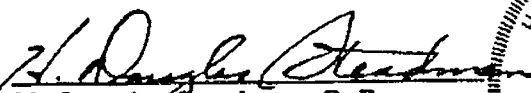
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

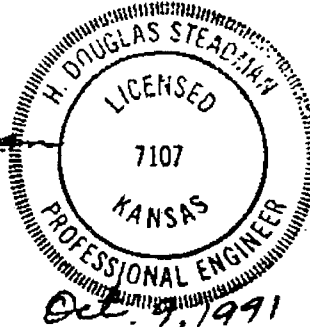
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-3 have been adequately designed and the tank system V-3 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-3 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-3 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-3 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-3, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

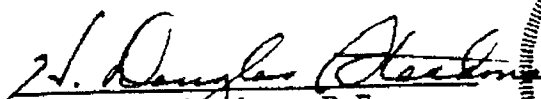
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

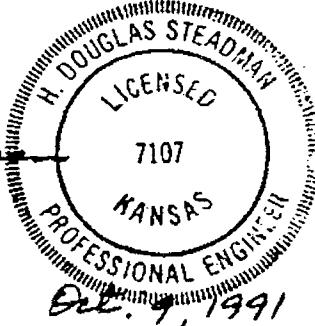
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-4 have been adequately designed and the tank system V-4 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-4 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-4 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-4 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-4, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

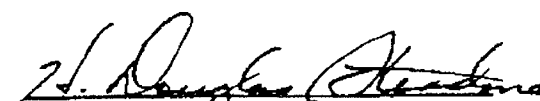
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

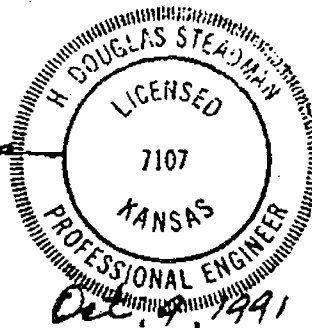
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-5 have been adequately designed and the tank system V-5 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-5 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-5 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-5 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-5, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 20,895 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM


I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

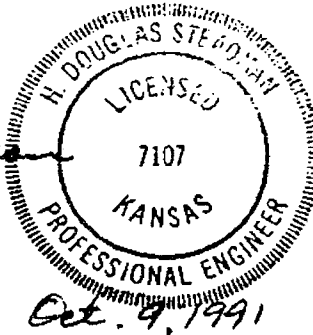
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-6 have been adequately designed and the tank system V-6 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-6 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-6 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-6 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-6, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 20,895 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

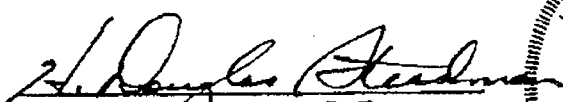
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

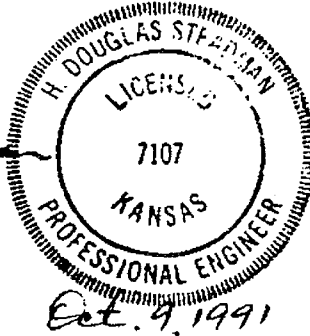
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-7 have been adequately designed and the tank system V-7 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-7 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-7 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-7 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-7, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

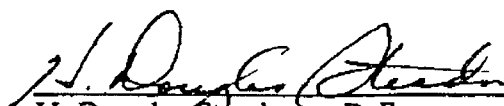
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

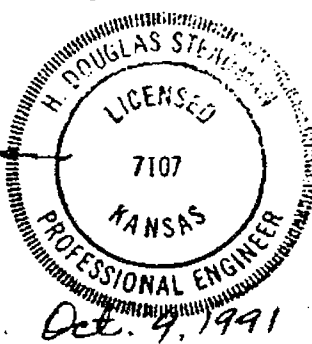
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-8 have been adequately designed and the tank system V-8 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-8 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-8 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-8 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-8, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

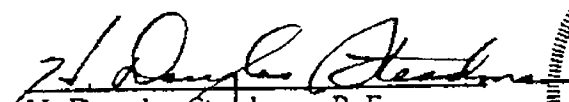
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

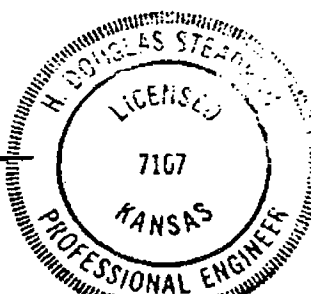
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-9 have been adequately designed and the tank system V-9 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-9 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-9 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-9 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-9, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

Oct. 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

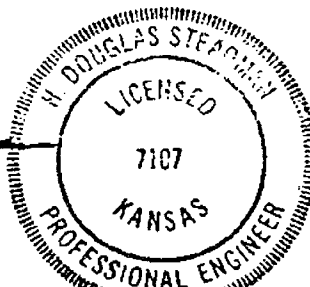
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-10 have been adequately designed and the tank system V-10 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-10 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-10 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-10 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-10, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



Oct. 9, 1991

October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

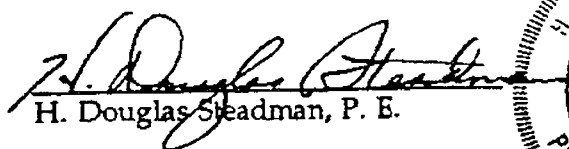
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

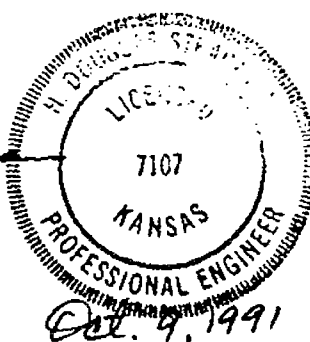
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-11 have been adequately designed and the tank system V-11 has sufficient structural strength, is compatible with waste perchloroethylene and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-11 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-11 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-11 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-11, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

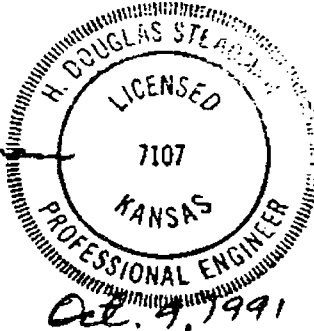
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-12 have been adequately designed and the tank system V-12 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-12 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-12 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-12 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-12, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

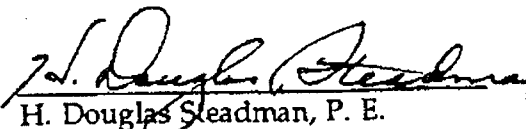
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

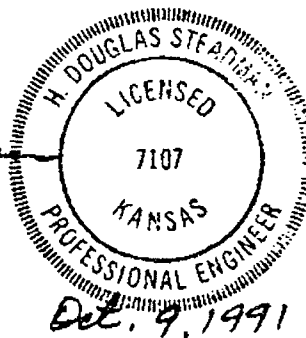
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-13 have been adequately designed and the tank system V-13 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-13 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-13 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-13 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-13, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

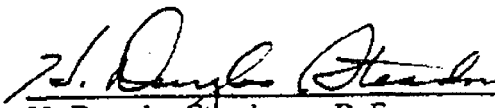
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

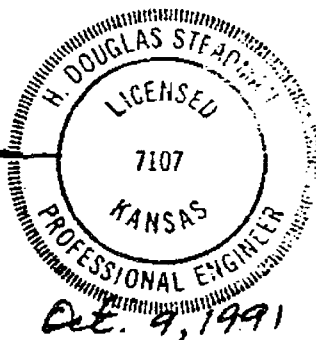
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-14 have been adequately designed and the tank system V-14 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-14 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-14 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-14 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-14, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

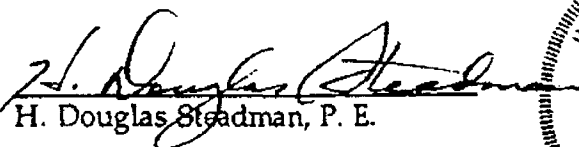
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

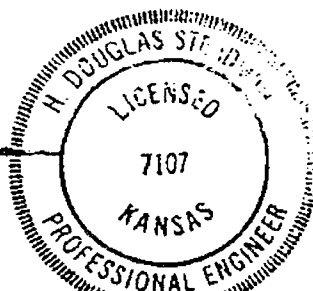
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-15A have been adequately designed and the tank system V-15A has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-15A was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-15A and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-15A is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 425, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-15A, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 2,659 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

Oct. 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

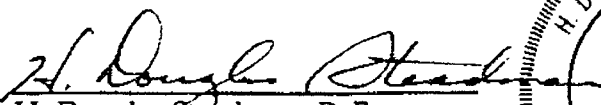
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

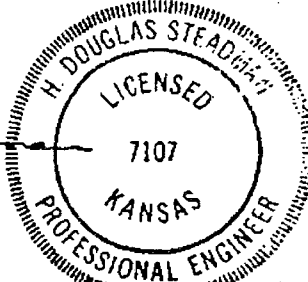
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-15B have been adequately designed and the tank system V-15B has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-15B was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-15B and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-15B is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 425, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-15B, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 2,659 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



Oct. 9, 1991

October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

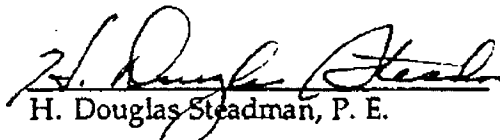
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

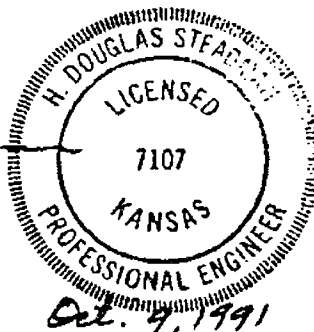
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-15C have been adequately designed and the tank system V-15C has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-15C was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-15C and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-15C is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 425, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-15C, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 2,659 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

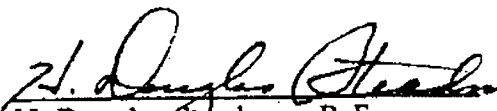
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

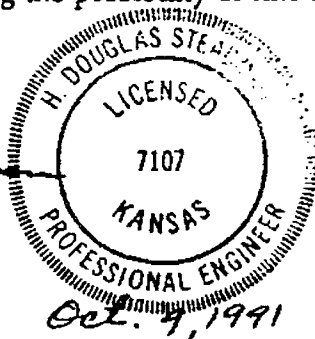
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-15D have been adequately designed and the tank system V-15D has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-15D was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-15D and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-15D is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 245, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-15D, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 2,659 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

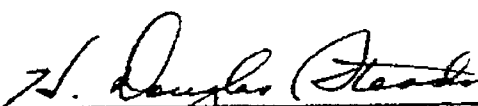
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

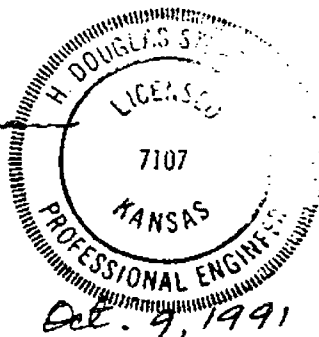
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-16 have been adequately designed and the tank system V-16 has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-16 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-16 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-16 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were UL 425, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-16, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 9,028 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

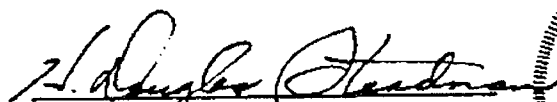
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

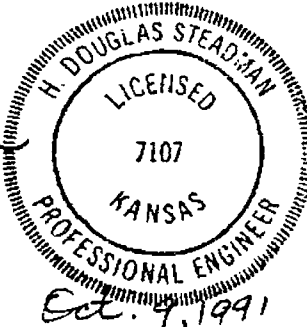
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-17 have been adequately designed and the tank system V-17 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-17 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That all ancillary equipment associated with the tank system V-17 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were AP 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-17, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 522 gallons of the waste type listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

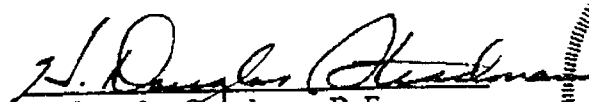
I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

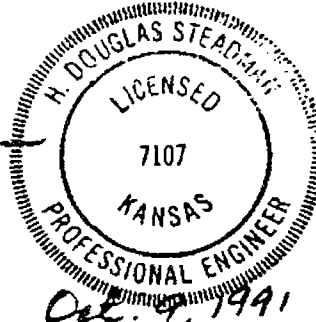
- 1) The foundation, structural support, seams, connections and pressure controls for the tank system V-18 have been adequately designed and the tank system V-18 has sufficient structural strength, is compatible with waste water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 2) That the tank system V-18 was inspected on July 25, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 3) That the tank system V-18 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on July 25, 1991 and it was found that such tank system tested positive for tightness; and
- 4) That all ancillary equipment associated with the tank system V-18 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 323-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank system and components, that tank system V-18, including its foundation, secondary containment, and all associated ancillary equipment, has been adequately designed, has been properly installed, has sufficient structural integrity and is acceptable for the storage of 489 gallons of the waste types listed in 1) above.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



October 9, 1991

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

I, H. Douglas Steadman, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

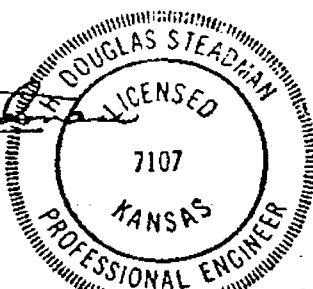
The foundation, structural support, seams, connections and pressure controls for the tank system V-26 have been adequately designed and the tank system V-26 has sufficient structural strength, is compatible with waste solvent and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system.

The design standards used to ensure that this tank system was properly designed and constructed were API 620, ACI 318-89, UBC 1991.

In conclusion, I certify that, in my opinion as a registered professional engineer trained and experienced in the proper structural design and installation of tank systems and components, that tank system V-26, to include its foundation and secondary containment, has been adequately designed, has sufficient structural integrity and is acceptable for the storage of 1,129 gallons of the waste solvent and water.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



Nov. 25, 1991

November 25, 1991

REISS & GOODNESS ENGINEERS

2160 WEST 21ST AVENUE - WICHITA, KANSAS 67203 2181 (366) 822 0211

CERTIFICATION FOR NEW ABOVE GROUND TANK SYSTEM

I. A. E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim, or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

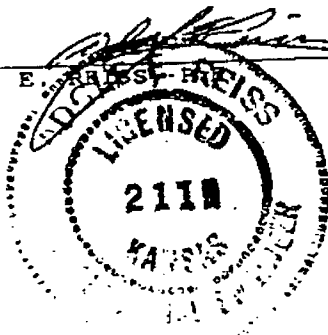
- 1) That the tank system V26 was inspected on October 24, 1991 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 2) That the tank system V26 and associated ancillary equipment was tightness tested while under the working pressure of 30 PSI on October 24, 1991 and it was found that such tank system tested positive for tightness; and
- 3) That all ancillary equipment associated with the tank system V26 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 1,129 gallons of the waste.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

December 6, 1991

A. E. REISS
#2119 KS



Clean Harbors Kansas, LLC

RCRA Permit Application

Section E

Tank Systems

Appendix E-A - Tank System Assessments and Certifications

Attachment 2, Tank Containment Certification Statements

Throughout this Attachment, the facility referred
to as "Clean Harbors Kansas, LLC" is the same facility
identified in the permit application as "Clean Harbors Kansas, LLC."

July 25, 1997
Revision No. 8

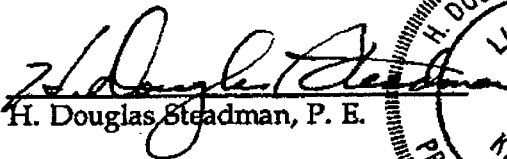
CERTIFICATION OF SECONDARY CONTAINMENT

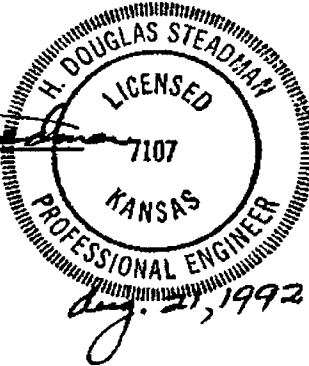
I, H. Douglas Steadman, P.E., a registered professional engineer in the State of Kansas, acting as an independent consultant for USPCI, inspected the facility on September 19, 1991, reviewed documents dated June 30, 1992 regarding modifications made by the facility, reviewed documents dated August 20, 1992 regarding containment calculation revisions, and hereby certify that the secondary containment system for the process area known as Areas P100 and P200 (for tanks V1 - V8, V-17, and V-26) at the HRS Wichita facility has sufficient structural integrity, has been properly designed and installed, and is acceptable for storing hazardous waste solvents and water. In particular, I certify that the secondary containment system:

1. foundation, structural support, and floor joints have been adequately designed
2. has sufficient structural strength to ensure it will not collapse, rupture, or fail
3. is compatible with the wastes being stored or treated in tanks V1 - V8, V-17, and V-26.
4. has sufficient corrosion protection to ensure it will not collapse, rupture, or fail
5. has been inspected for the presence of punctures, scrapes of protective coatings, cracks or gaps, corrosion, leaks and other structural damage or inadequate construction or installation; and that all discrepancies were identified and remedied
6. has been designed and installed to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water
7. is capable of visual detection and collecting releases and accumulated liquids until the collected material is removed
8. is coated with materials that are impervious to the wastes to be placed in the tank system and have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrologic forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including supporting the weight of full tanks)
9. is placed on a foundation capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift
10. is provided with a visual leak detection layout that is designed and is currently operated so that it will amplify the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste of accumulated liquid within 24 hours
11. is designed and operated to drain and remove liquids resulting from spills, leaks, or precipitation within 24 hours.
12. is designed and operated to contain 100 percent of the capacity of the largest tank or 10% of the drum storage capacity within its boundary

13. has sufficient excess capacity to contain precipitation from a 25-year, 24-hour rainfall event
14. is free of gaps or cracks in the secondary containment surface
15. is designed and installed to surround the tank completely and to cover all surrounding surfaces likely to come into contact with the waste if the waste is released from the tanks.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



August 21, 1992

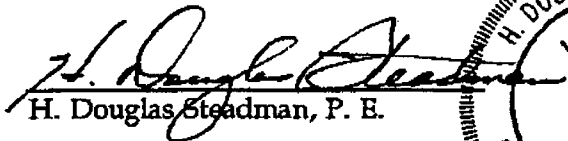
CERTIFICATION OF SECONDARY CONTAINMENT

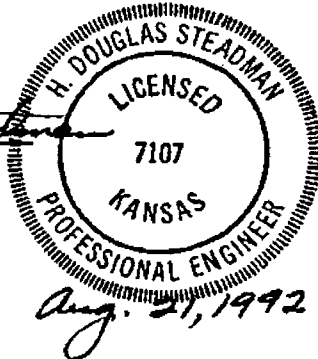
I, H. Douglas Steadman, P.E., a registered professional engineer in the State of Kansas, acting as an independent consultant for USPCI, inspected the facility on September 19, 1991, reviewed documents dated August 20, 1992 regarding containment calculation revisions, and hereby certify that Area D100 of Building D's secondary containment system for tank V18 at the HRS Wichita facility has sufficient structural integrity, has been properly designed and installed, and is acceptable for storing hazardous waste solvents and water. In particular, I certify that the secondary containment system:

1. foundation, structural support, and floor joints have been adequately designed
2. has sufficient structural strength to ensure it will not collapse, rupture, or fail
3. is compatible with the wastes being stored or treated in tank V18
4. has sufficient corrosion protection to ensure it will not collapse, rupture, or fail
5. has been inspected for the presence of punctures, scrapes of protective coatings, cracks or gaps, corrosion, leaks and other structural damage or inadequate construction or installation; and that all discrepancies were identified and remedied
6. has been designed and installed to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water
7. is capable of visual detection and collecting releases and accumulated liquids until the collected material is removed
8. is coated with materials that are impervious to the wastes to be placed in the tank system and have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrologic forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including supporting the weight of full tanks)
9. is placed on a foundation capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift
10. is provided with a visual leak detection layout that is designed and is currently operated so that it will amplify the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste of accumulated liquid within 24 hours
11. is designed and operated to drain and remove liquids resulting from spills and leaks within 24 hours.

12. is designed and operated to contain 100 percent of the capacity of the largest tank or 10% of the drum storage capacity within its boundary
13. does not need to have sufficient excess capacity to contain precipitation from a 25-year, 24-hour rainfall event because it is enclosed
14. is free of gaps or cracks in the secondary containment surface
15. is designed and installed to surround the tank completely and to cover all surrounding surfaces likely to come into contact with the waste if the waste is released from the tanks.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



August 21, 1992

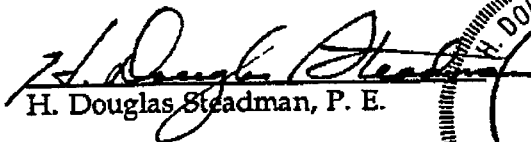
CERTIFICATION OF SECONDARY CONTAINMENT

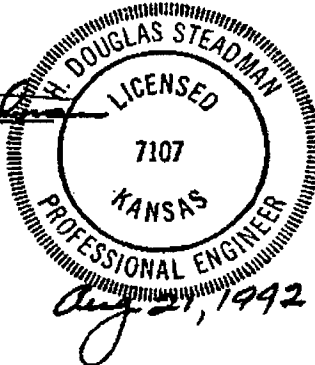
I, H. Douglas Steadman, P.E., a registered professional engineer in the State of Kansas, acting as an independent consultant for USPCI, inspected the facility on September 19, 1991, reviewed documents dated August 20, 1992 regarding containment calculation revisions, and hereby certify that the Area D400 of Building D's secondary containment system for tanks V9 - V14, V15A - V15D, and V16, at the HRS Wichita facility has sufficient structural integrity, has been properly designed and installed, and is acceptable for storing hazardous waste solvents and water. In particular, I certify that the secondary containment system:

1. foundation, structural support, and floor joints have been adequately designed
2. has sufficient structural strength to ensure it will not collapse, rupture, or fail
3. is compatible with the wastes being stored or treated in tanks V9 - V14, V15A - V15D, and V16
4. has sufficient corrosion protection to ensure it will not collapse, rupture, or fail
5. has been inspected for the presence of punctures, scrapes of protective coatings, cracks or gaps, corrosion, leaks and other structural damage or inadequate construction or installation; and that all discrepancies were identified and remedied
6. has been designed and installed to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water
7. is capable of visual detection and collecting releases and accumulated liquids until the collected material is removed
8. is coated with materials that are impervious to the wastes to be placed in the tank system and have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrologic forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including supporting the weight of full tanks)
9. is placed on a foundation capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift
10. is provided with a visual leak detection layout that is designed and is currently operated so that it will amplify the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste of accumulated liquid within 24 hours
11. is designed and operated to drain and remove liquids resulting from spill and leaks within 24 hours.

12. is designed and operated to contain 100 percent of the capacity of the largest tank within its boundary
13. does not need to have sufficient excess capacity to contain precipitation from a 25-year, 24-hour rainfall event because it is enclosed
14. is free of gaps or cracks in the secondary containment surface
15. is designed and installed to surround the tank completely and to cover all surrounding surfaces likely to come into contact with the waste if the waste is released from the tanks.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


H. Douglas Steadman, P. E.



August 21, 1992

USPCI - HRI WICHITA
SECONDARY CONTAINMENT CALCULATIONS

BUILDING D AREA D100

Volume provided:

| | | | |
|----------------|-------------------------------|-----|-----------------------------|
| Area D100 | 49' x 45.17' | = | 2,213.33 ft ² |
| South Ramp | 11.75' x 4' + 11.75' x 3' / 2 | = - | 64.63 ft ² |
| South Door | 4' x 5' | = - | 20.00 ft ² |
| West Doors | 3.33' x 4' + 2' x 3.17' | = | <u>19.66 ft²</u> |
| Total Net Area | | = | 2,148.36 ft ² |

Total Volume Provided:

North curb is 1.25 inches high;
 $(2,148.36 \text{ ft}^2 \times 0.10') \times$
 $7.48 \text{ gal/ft}^3 = 1,606.97 \text{ gal}$

Drum Displacement: 152 drums double stacked, (76 on floor level).

$$76 \times 3.14 (1')^2 \times 0.10' \times 7.48 = - 178.50 \text{ gal}$$

Total Net Volume Provided: = 1,428.47 gal

Capacity Required

Largest Container is Tank V-18 at 489 gallons,
Total volume stored in Area D100 is 8,849 gallons @ 10% is 884.90
gallons, therefore; 884.90 gallons is the capacity required.

Summary

The volume provided is greater than the capacity required. No rain
infiltration applies since the area is enclosed.


H. Douglas Steadman
Aug. 20, 1992

USPCI - HRI WICHITA
SECONDARY CONTAINMENT CALCULATIONS

BUILDING D AREA D400

Volume provided:

| | | | |
|----------------|---------------|-----|-----------------------------|
| Area D400 | 70.67' x 29' | = | 2,049.43 ft ² |
| South Door | 4.33' x 3.50' | = - | 15.16 ft ² |
| East Area | 5.50' x 15.5' | = | <u>85.25 ft²</u> |
| Total Net Area | | = | 2,119.52 ft ² |

Total Volume Provided:

Curb height is 7 inches.

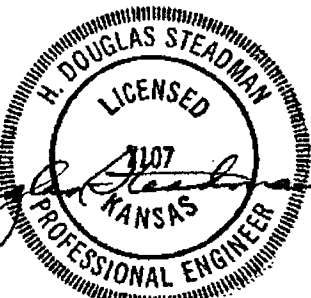
$$\begin{array}{rcl} (2,119.52 \text{ ft}^2 \times 0.58') \times & & \\ 7.48 \text{ gal/ft}^3 & = & 9,195.33 \text{ gal} \end{array}$$

Capacity Required

Tank V - 16 = 9,028 gallons

Summary

The volume provided is greater than the capacity required. No rain infiltration applies since the area is enclosed.


H. Douglas Steadman
Aug. 20, 1992

HRIW
SECONDARY CONTAINMENT CALCULATIONS

PROCESS AREA

P100 and P200 are interconnected and are considered one secondary containment area.

Process Area P100

Volume Provided

| | | | |
|--------------------|---------------------------------|---|----------------------------------|
| Area P100 | 31.71' x 69.67' x 1' | = | 2,209.24 ft ³ |
| Truck Ramps | (1/2 x 29.83' x 15' x 1') x 2 | = | 447.45 ft ³ |
| Sump Area | 10' x 15.50' x 1' | = | <u>155.00 ft³</u> |
| Total Gross Volume | | = | 2,811.69 ft ³ |
| | | | <u>x 7.48 gal/ft³</u> |
| Total Volume | | = | 21,031.44 gal |

Process Area P200

Volume Provided

| | | | |
|--------------------|--|---|----------------------------------|
| Area P200 | 33.96' x 69.67' x 1' | = | 2,365.99 ft ³ |
| West Ramp | (1/2 x 7.83' x 8.83' x 1') + (0.67' x 8.83' x 1') | = | 40.49 ft ³ |
| South Berm Opening | 10' x 1' x 1' | = | <u>10.00 ft³</u> |
| Total Gross Volume | | = | 2,416.48 ft ³ |
| | | = | <u>x 7.48 gal/ft³</u> |
| Total Volume | | = | 18,075.27 gal |

Rainfall requirements

Area to Receive Rain (Worst Case)

Note: Area P100 and P200 are covered with a building. To estimate the worst case scenario of rain infiltration, we have calculated the rain of a 24 hour 25 year event coming in on the south and west sides at a 60 degree angle from horizontal. The open area on these two sides is 16.18' ($x = 16.18' / \tan 60^\circ = 9.34'$)

| | | | |
|---|----------------|---|----------------------------------|
| South Side | 9.34' x 69.67' | = | 650.72 ft ² |
| West Side | 9.34' x 82.17' | = | <u>767.47 ft²</u> |
| | | = | 1,418.19 ft ² |
| Rainfall | 6.15" x 1'/12" | = | <u>x 0.51 ft</u> |
| Total Gross Volume of rain infiltration | | = | 723.28 ft ³ |
| | | = | <u>x 7.48 gal/ft³</u> |
| Total Required for Rainfall | | = | 5,410.11 gal |

Summary

Volume Provided

| | | |
|-----------------------------|---|----------------------|
| P100 | = | 22,031.44 gal |
| P200 | = | <u>18,075.27 gal</u> |
| Total Gross Volume Provided | = | 40,106.71 gal |

Minus Storage Drums

Area P100: 88 drums single stacked on ramps.

$$\begin{array}{rcl} 0.5 \times 88 \text{ dr} \times 3.14 \times (1')^2 & & \\ \times 1' \times 7.48 \text{ gal/ft}^3 & = & 1,033.44 \text{ gal} \end{array}$$

Minus Storage Drums

Area P200: 92 drums double stacked, (46 on floor level).

$$\begin{array}{rcl} 46 \text{ dr} \times 3.14 \times (1')^2 \times & & \\ 1' \times 7.48 \text{ gal/ft}^3 & = & 1,080.41 \text{ gal} \end{array}$$

| | | |
|---------------------------|---|---------------------|
| Rainfall Requirements | = | <u>5,410.13 gal</u> |
| Total Gross Volume | = | 7,523.98 gal |
| Total Net Volume Provided | | |

$$40,106.71 \text{ gal} - 7,523.98 \text{ gal} = 32,582.73 \text{ gal}$$

Capacity Required

The largest tank volume or 10% of the total volume

| | | |
|-------------------------------------|---|---------------------|
| Total Maximum Tank Volume Area P100 | = | 86,211.00 gal |
| Total Maximum Tank Volume Area P200 | = | 1,155.00 gal |
| Total Container Volume 180 Drums | = | <u>9,900.00 gal</u> |

| | | |
|-------------------------|---|---------------|
| Total Required Capacity | = | 97,266.00 gal |
|-------------------------|---|---------------|

| | | |
|-----------------------|---|--------------|
| 10% of Total Capacity | = | 9,726.60 gal |
|-----------------------|---|--------------|

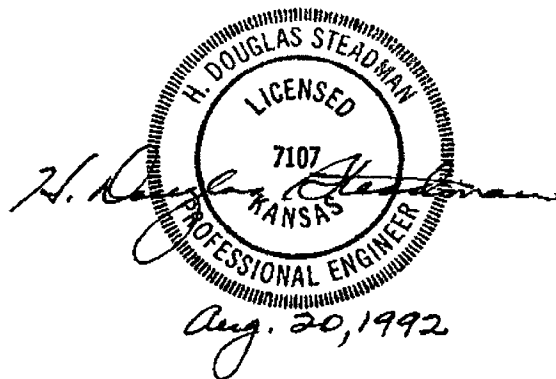
| | | |
|---------------------|-----|-----------------|
| or | | |
| Largest Tank Volume | V-5 | = 20,895.00 gal |
| | | (controls) |

| | | |
|-------------------------|---|---------------|
| Total Capacity Required | = | 20,895.00 gal |
|-------------------------|---|---------------|

| | | |
|-------------------------|---|---------------|
| Total Capacity Provided | = | 32,582.73 gal |
|-------------------------|---|---------------|

Net Difference

| | | |
|-------------------------------|---|---------------|
| 32,582.73 gal - 20,895.00 gal | = | 11,687.73 gal |
|-------------------------------|---|---------------|





REISS & GOODNESS ENGINEERS

2100 WEST 21ST STREET - WICHITA, KANSAS 67203-2101 (316) 832-0213

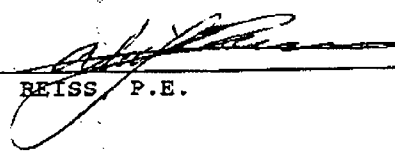
CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) The pedestal of tank system V-2 was modified in June of 1992 by cutting two grooves in the pedestal 1/2" deep by 3/4" wide for the purpose of leak detection;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-2 have been adequately designed and the tank system V-2 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-2 was inspected on June 30, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the associated ancillary equipment for tank V-2 was tightness tested while under the working pressure of 30 PSI on May 22, 1992 and it was found that such tank system tested positive for tightness; and
- 5) That all ancillary equipment associated with the tank system V-2 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,084 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.

#2119 KS

2119

July 29, 1992



REISS & GOODNESS ENGINEERS

2160 WEST 21ST STREET - WICHITA, KANSAS 67203-2101 (316) 832-0211

CERTIFICATION - ABOVE GROUND TANK SYSTEM

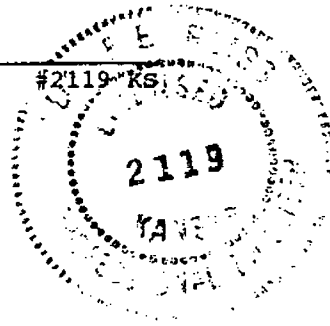
I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) The ancillary system of V-3 was modified in June of 1992 for the installation of a pump;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-3 have been adequately designed and the tank system V-3 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-3 was inspected on May 22, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the tank system V-3 was tightness tested while under a working pressure of 15 psi on June 30, 1992 and it was found that such tank system tested positive for tightness;
- 5) That the associated ancillary equipment for tank V-3 was tightness tested while under the working pressure of 30 PSI on June 30, 1992 and it was found that such tank system tested positive for tightness; and
- 6) That all ancillary equipment associated with the tank system V-3 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. RELS, P.E.



July 29, 1992



REISS & GOODNESS ENGINEERS

2160 WEST 21ST STREET - WICHITA, KANSAS 67203 2181 (316) 832-0213

CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) The ancillary system of tank V-5 was modified in June of 1992;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-5 have been adequately designed and the tank system V-5 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-5 was inspected on July 1, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the associated ancillary equipment for tank V-5 was tightness tested while under the working pressure of 30 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness; and
- 5) That all ancillary equipment associated with the tank system V-5 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 20,895 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.

#2119



July 29, 1992



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2100 WEST 21ST STREET - WICHITA, KANSAS 67203 2181 (316) 832-0213

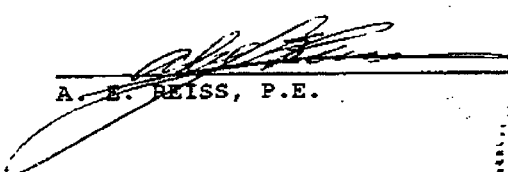
CERTIFICATION - ABOVE GROUND TANK SYSTEM

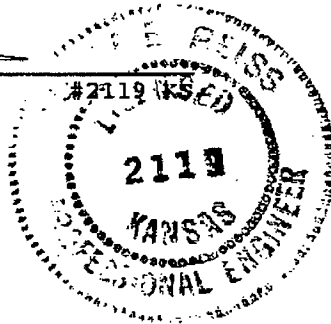
I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) The ancillary system of tank V-6 was modified in June of 1992;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-6 have been adequately designed and the tank system V-6 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-6 was inspected on July 1, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the associated ancillary equipment for tank V-6 was tightness tested while under the working pressure of 30 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness; and
- 5) That all ancillary equipment associated with the tank system V-6 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 20,895 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.



July 29, 1992



REISS & GOODNESS ENGINEERS

2160 WEST 21ST STREET - WICHITA, KANSAS 67203-2161 (316) 632-0213

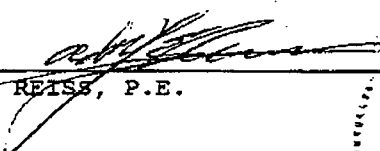
CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) The ancillary system of tank V-26 was modified in June of 1992;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-26 have been adequately designed and the tank system V-26 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system.
- 3) That the tank system V-26 was inspected on July 1, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the associated ancillary equipment for tank V-26 was tightness tested while under the working pressure of 30 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness; and
- 5) That all ancillary equipment associated with the tank system V-26 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 329 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.



July 29, 1992



REISS & GOODNESS ENGINEERS

2160 WEST 21ST STREET - WICHITA, KANSAS 67203 2161 (316) 632-0213

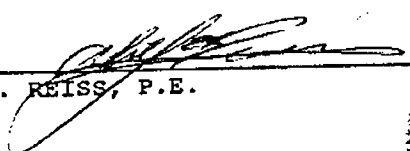
CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) A larger manway was installed in tank V-7 in June of 1992;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-7 have been adequately designed and the tank system V-7 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-7 was inspected on July 1, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the tank system V-7 and associated ancillary equipment was tightness tested while under the working pressure of 15 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness;
- 5) That the associated ancillary equipment for tank V-7 was tightness tested while under the working pressure of 30 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness; and
- 6) That all ancillary equipment associated with the tank system V-7 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.



July 29, 1992



REISS & GOODNESS ENGINEERS
2160 WEST 21ST STREET - WICHITA, KANSAS 67203-2181 (316) 832-0213

CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) A larger manway was installed in tank V-8 and the tank was repaired in June of 1992;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-8 have been adequately designed and the tank system V-8 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-8 was inspected on July 1, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the tank system V-8 was tightness tested while under the working pressure of 15 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness;
- 5) That the associated ancillary equipment for tank V-8 was tightness tested while under the working pressure of 30 PSI on July 1, 1992 and it was found that such tank system tested positive for tightness; and
- 6) That all ancillary equipment associated with the tank system V-8 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 7,181 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.



July 29, 1992



REISS & GOODNESS ENGINEERS

2180 WEST 21ST STREET - WICHITA, KANSAS 67203-2181 (316) 832-0213

CERTIFICATION - ABOVE GROUND TANK SYSTEM

I, A.E. Reiss, a registered professional engineer in the State of Kansas, acting as an independent consultant for Hydrocarbon Recyclers, Inc., d/b/a/ USPCI, do hereby certify, attest, acclaim or otherwise make known to all persons with particular regards to the requirements of 40 CFR, Part 264.192 that:

- 1) That on June 28, 1992 tank system V-14 underwent modifications to install ancillary system for a portable pump and to install ancillary system for hose reel;
- 2) The foundation, structural support, seams, connections and pressure controls for the tank system V-14 have been adequately designed and the tank system V-14 has sufficient structural strength, is compatible with waste solvents and water and has adequate corrosion protection to ensure that it will not collapse, rupture, or fail during the expected life of the tank system;
- 3) That the tank system V-14 was inspected on June 30, 1992 for weld breaks, punctures, scrapes of protective coating, cracks, leaks, corrosion and any other structural damage or inadequacies of construction/installation and all discrepancies that were found have been corrected;
- 4) That the associated ancillary equipment for tank V-14 was tightness tested while under the working pressure of 30 PSI on June 30, 1992 and it was found that such tank system tested positive for tightness; and
- 5) That all ancillary equipment associated with the tank system V-14 is properly supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

I certify that, in my opinion as a registered professional engineer trained and experienced in the proper installation of the above tank system and components, that tank system and ancillary equipment has been properly installed, has sufficient structural integrity and is acceptable for the storage of 5,078 gallons of waste solvents and water.

I certify under penalty of law that this document and all attachments were prepared under my direction in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


A. E. REISS, P.E.

#2119 KS

2119

KANSAS

PROFESSIONAL ENGINEER

July 29, 1992

Clean Harbors Kansas, LLC

RCRA Permit Application

Section E

Tank Systems

Appendix E-A - Tank System Assessments and Certifications

Attachment 3, Compatibilities of Wastes with Tank Materials

July 25, 1997
Revision No. 8

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 1

Tank Material - A36 Steel

Service: Wastewater

Wastewater contaminated with solvents such as oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, and stoddard solvent.

May also be used for kiln fuel wastes which include water and solvents such as oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, and stoddard solvent.

Hazardous Characteristics of Waste: Ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data: (Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste or its vapors and to prevent sources of ignition from contacting the waste. The tank is constructed of nonflammable material, (steel). Tank is vented through a demister to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tanks 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14 and 17

Tank Material - A36 Steel

Service: Waste Solvents and Water

The waste solvents may include diesel, oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, stoddard solvent, and dioxane.

Hazardous Characteristics of Waste: Ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste or its vapors and to prevent sources of ignition from contacting the waste. The tank is constructed of nonflammable material, (steel). Tank is vented through a demister to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 11

Tank Material - A36 Steel

Service: Waste perchloroethylene

Perchloroethylene contaminated with oil and dirt

Hazardous Characteristics of Waste: Toxicity and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste and to prevent potentially toxic vapors from contacting personnel. Tank is vented through a demister to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 15a, 15b, 15c, 15d and 16

Tank Material - A36 Steel

Service: Wastewater

Wastewater contaminated with solvents such as oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, and stoddard solvent.

Hazardous Characteristics of Waste: Possible ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste and to prevent sources of ignition from contacting the waste. The tank is constructed of nonflammable material, (steel). Tank is vented through a demister to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 18

Tank Material - A36 Steel

Service: Wastewater

Wastewater contaminated with solvents such as oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, and stoddard solvent.

Hazardous Characteristics of Waste: Possible ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste and to prevent sources of ignition from contacting the waste. The tank is constructed of nonflammable material, (steel). Tank is vented to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 24

Tank Material - A36 Steel

Service: Waste Solvents and Water

The waste solvents may include diesel, oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, stoddard solvent, and dioxane.

Hazardous Characteristics of Waste: Ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is closed to prevent physical contact with the waste or its vapors and to prevent sources of ignition from contacting the waste. The tank is constructed of nonflammable material, (steel). Tank is vented to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 26

Tank Material - A36 Steel

Service: Waste Solvents and Water

The waste solvents may include diesel, oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, stoddard solvent, and dioxane.

Hazardous Characteristics of Waste: Ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:
(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is constructed of nonflammable material,(steel). Sources of ignition are not allowed near the tank. Personnel in the vicinity of the tank wear protective clothing to prevent contact with potentially toxic liquids or vapors. Tank is vented to atmosphere.

COMPATIBILITY OF WASTE WITH TANK MATERIALS

Tank 34

Tank Material - A36 Steel

Service: Waste solvents and water

Diesel contaminated with water and solvents such as oil, ethanol, heptane, hexane, xylene, toluene, trichloroethane, perchloroethylene, methyl ethyl ketone, methyl isobutyl ketone, acetone, and stoddard solvent.

Hazardous Characteristics of Waste: Ignitability, toxicity, and reactivity.

Tank Inspection Results:

Tank thicknesses were measured and were found to have acceptable decreases in thickness due to corrosion or incompatibility. (See individual tank data sheets and historical test results).

Compatibility Data:

(Published data for applicable solvents)

The compatibility charts contained in Corrosion Data Survey, 6th Edition, published by the National Association of Corrosion Engineers show that the average penetration rates for acetone, methyl ethyl ketone, methyl, isobutyl ketone, perchloroethylene, trichloroethane, trichloroethylene and xylene on steel to be less than .020 inches per year.

Table 23-2 from Perry's Chemical Engineers Handbook shows that the corrosion rate of ethanol and methanol on steel are less than .02 inches per year.

Control of Hazardous Characteristics:

Tank is constructed of nonflammable material, (steel). Sources of ignition are not allowed near the tank. Concentrations of potentially toxic compounds are low, so as not to pose much of a health hazard. Personnel in the vicinity of the tank wear protective clothing to prevent contact with potentially toxic liquids or vapors. Tank is vented to atmosphere.

Clean Harbors Kansas, LLC

RCRA Permit Application

Section E

Tank Systems

Appendix E-A - Tank System Assessments and Certifications

Attachment 4, Tank System Field Notes

July 25, 1997
Revision No. 8

HRS; WICHITA, KANSAS

2ND VISIT 7/25/91

3RD VISIT 9/5/91

PIPE SUPPORT 9/18/91

| TANK # | FOUNDATION REVIEW | EXTERIOR TANK REVIEW | | REVIEW FAST ELECTRICALS SHELL | PIPE TESTING 4TH VISIT | | |
|----------------------|-------------------|----------------------|-------|--|---------------------------|-------------------|----------------------|
| | | STRUC | PAINT | | INLET | OUTLET | |
| U1 | OK | OK | OK | - | 5:10 30.5 OK | 11:00A 29.5 OK | END NEEDS SUPPORT |
| U2 | OK | OK | OK | - | 5:45 29.5 OK | X | OK |
| U3 | OK | OK | OK | - | 5:10 29 OK | 11:00 30 OK | OK |
| U4 | OK | OK | OK | - | 9:30 30 OK | 1:45P 28.75 OK | OK |
| U5 | OK | MAINWAY AIDED | OK | - | 3:30 29.25 OK | 1:45P 29.5 OK | OK 9/5/91 |
| U6 | OK | OK | OK | - | 2:30 29.25 OK | 1:45P 29.5 OK | OK 9/5/91 |
| U7 | OK | OK | OK | - | 5:10 30 OK | 1:45P 30.75 OK | OK |
| U8 | OK | OK | OK | - | 6:00 30 OK | 11:00A 30 OK | END NEEDS SUPPORT |
| U9 | OK | OK | OK | - | X | 11:00A 29.5 OK | OK |
| U10 | OK | OK | OK | - | X | 11:00A 29.5 OK | |
| U11 | OK | OK | OK | - | X | 1:45P 28.75 OK | |
| U12 | OK | OK | OK | - | X | 9:30 29.5 OK | |
| U13 | OK | OK | OK | - | X | 11:00A 30 OK | |
| U14 | OK | OK | OK | - | X | 9:30 29.75 OK | |
| U15A | OK | OK | OK | - | X | 1:45P 29 OK | |
| U15B | OK | OK | OK | - | X | 1:45P 29 OK | |
| U15C | OK | OK | OK | - | X | 1:45P 29 OK | OK |
| U16 | OK | OK | OK | - | X | 1:45 30.5 OK | OK |
| U18 | OK | OK | OK | NA | X | X | OK |
| U24 | OK | OK | OK | NA | X | X | OK |
| SPENDER U26 | OK | OK | OK | NA | X | X | NEEDS X-BRACING |
| DRUM WASH U34 | OK | OK | OK | NA | X | X | X |
| SOLIDS LINE DRYER | NA | NA | NA | | X | 11:00A 30.5 OK | OK |
| U15D | OK | OK | OK | - | X | 1:45P 29 OK | OK |
| U17 | OK | OK | OK | NA | X | X | NA |

34
TANKS

END NEEDS
SUPPORT

10:30P 30
1:00P 35

END NEEDS
SUPPORT

END
9/5/91

TANK CERTIFICATION FOR U1

DATE: 7/25/91 - 2ND VISIT

EXTERIOR REVIEW

PAINT-

BOT OK
SIDES OK

TOP OK

STRUCTURE-

NO SIGNS OF DISTRESS
OR WELD FAILURE

SHELL THICKNESSES - 7/8 TO 1 1/8 CORROSION RATES OK

PICTURES - FIRST VISIT

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING
OR FAILURE

PIPE TESTING

TANK
INLET-

| Date | Time | Pressure |
|------|---------------|--------------|
| 7/25 | 11:5A - 1:00P | 14 PSI OK |
| 7/25 | 5:10P - 7:00P | 30(+) PSI OK |

OUTLET-

7/25 11:00 A - 1:00P 29.5 PSI OK

SUPPORTS-

END SUPPORT REQUIRED
7/25/91

WORK &
COMPLETE 9/5/91

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U2

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT-

SIDES - OK

TOP OK

STRUCTURE-

HORIZ. TANK TURNED VERT.
NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES-

7/89 TO 11/90 CORROSION RATES OK

PICTURES-

FIRST TRIP

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR
FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | 5/25 | 5:45P-7:00P | 29.5PSI OK |
| OUTLET- | NA | | |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U3

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT-

BOT OK.

TOP OK

STRUCTURE-

SIDES OK

NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES-

7/89 TO 11/90 CORROSION RATES OK

PICTURES-

LAST VISIT

FOUNDATION REVIEW

SHRINKAGE CRACK RUNS PARALLEL TO
WEST LEGS BUT NOT CAUSED BY SETTLEMENT
OR FOUNDATION FAILURE

PIPE TESTING

TANK
INLET-

| Date | Time | Pressure | |
|------|-------------|----------|----|
| 7/25 | 2:00-5:00P | 15 PSI | OK |
| 7/25 | 5:10P-7:00P | 29 PSI | OK |

OUTLET-

| | | | |
|------|-------------|--------|----|
| 7/25 | 11:00-1:00P | 30 PSI | OK |
|------|-------------|--------|----|

SUPPORTS-

OK

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR V4

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- BOT OK TOP OK
SIDES OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURES

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK
(ONE LOW READING IN 11/90 NEEDS WATCHING)

PICTURES- FIRST VISIT

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|--------------|------------------|
| TANK | 7/25 | 3:00 P-5:00P | 14 PSI OK |
| INLET- | 7/25 | 5:10P | 29.5 PSI NOT OK |
| | 7/26 | 9:30A-11:30A | 30 PSI OK |
| OUTLET- | 7/25 | 11:00 A | 29.25 PSI NOT OK |
| | | 1:45 P-3:45P | 28.75 PSI OK |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U5

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT-

BOT OK TOP OK

STRUCTURE-

SIDES OK BUT WEST SIDE HAS SOME PEELING PAINT @ CATWALK

SHELL THICKNESSES-

NO SIGNS OF DISTRESS OR WELD FAILURE
NEW MANWAY ADDED NEXT TO OLD ONE.

PICTURES-

LAST VISIT

FOUNDATION REVIEW

NO SIGNS OF FOUNDATION SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|--------------|-----------------|--------|
| INLET- | 7/25 | 5:00 | 29 | NOT OK |
| | 7/26 | 8:30A | 29.5PSI | |
| OUTLET- | 7/25 | 11:00A | 29.5 | RET OK |
| | | 1:46 P-3:45P | 29.5 | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR V6

DATE: 7/25/91 - 2ND VISIT

EXTERIOR REVIEW

PAINT- BOT LIGHT FLAKING ON SOUTH END TOP OK
SIDES OK
STRUCTURE- SHRINKAGE CRACK COMES OFF THE PIPE TROUGH
SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK
PICTURES- FIRST VISIT

FOUNDATION REVIEW

SHRINKAGE CRACK COMES OFF THE NORTH END
OF PIPE TROUGH BUT IS NOT DUE TO FOUNDATION
SETTLEMENT OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|--------|
| INLET- | 7/25 | 5:00P | 29.5 | NOT OK |
| | 7/26 | 8:30A | 29.5 PSI | |
| OUTLET- | 7/25 | 11:00A | 29.5 PSI | NOT OK |
| | | 1:45P-3:45P | 29.5 | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR V7

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- BOT OK TOP OK
SIDES OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW NO SIGNS OF FOUNDATION SETTLEMENT,
CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|----|
| TANK | 7/25 | 2:50-5:00P | 14PSI | OK |
| INLET- | 7/25 | 5:10P-7:00P | 30PSI | OK |
| OUTLET- | 7/25 | 1:45P-3:45P | 30.75PSI | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT SEE SEPARATE SHEET

TANK CERTIFICATION FOR U8

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- BOT - MINOR FLAKING TOP OK
SIDES - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURES

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW

NO SIGNS OF FOUNDATION SETTLEMENT, CRACKING
OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|---------|-------------|-------------|-----------------|----|
| TANK | 7/25 | 1:45-5:00 P | 14 PSI | OK |
| INLET- | 7/25 | 6:00P-7:00 | 30 PSI | OK |
| OUTLET- | 7/25/91 | 11:00 A | 30 PSI | OK |

SUPPORTS-

END SUPPORT FOR PIPES REQUIRED 7/25/91
DONE & COMPLETE 9/5/91

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR

U9

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT-

SIDES OK.

END OK

STRUCTURE-

NO SIGNS OF DISTRESS OR WELD FAILURES

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEWFOOTINGS DO NOT SHOW ANY SIGNS OF
SETTLEMENT, CRACKING OR FAILUREPIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | NA | | |
| OUTLET- | 7/25 | 11:00A | 29.5 PSI OK |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR UIC

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK

ENDS - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES- 7/29 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW

FOOTINGS SHOW NO SIGNS OF SETTLEMENT,
CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|----|
| INLET- | DA | | | |
| OUTLET- | 7/25 | 11:00A | 29.5PSI | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U11

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW

FOOTING SHOWS NO SIGNS OF SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|----|
| INLET- | NA | | | |
| OUTLET- | 7/25 | 1:45P-3:45P | 28.75 PSI | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U12

DATE: 7/25/91 - 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE.

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW

FOOTINGS SHOW NO SIGNS OF SETTLEMENT, CRACKING
OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|--------|
| TANK | 7/25 | 3:00 | 12 PSI | |
| INLET- | NA | | | |
| OUTLET- | 7/25 | 1:45 P | 29.25 PSI | NOT OK |
| | 7/26 | 9:30 A | 29.5 PSI | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U13

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK
STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE
SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK
PICTURES- FIRST VISIT

FOUNDATION REVIEW

FOOTINGS SHOW NO SIGNS OF SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|----|
| INLET- | NA | | | |
| OUTLET- | 7/25 | 11:00A | 30(-) | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U14

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES -OK
ENDS - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- FIRST VISIT

FOUNDATION REVIEW

FOOTINGS SHOW NO SIGNS OF SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|----|
| INLET- | NA | | | |
| OUTLET- | 7/25 | 11:00A | 30. PSI | OK |
| SUPPORTS- | OK | | | |

CONTAINMENT SEE SEPARATE SHEET

TANK CERTIFICATION FOR U15A

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK
STRUCTURE- SLIGHT DISTORTION @ TANK SADDLES BUT
TANK IS SOUND
SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK
PICTURES- FIRST VISIT

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR
FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | HA | | |
| OUTLET- | 7/25 | 1:45P-3:45P | 29PSI OK |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR V15B-C

DATE: 7/25/91 2ND REVIEW

EXTERIOR REVIEW

PAINT-

SIDES - OK

ENDS - OK

STRUCTURE-

SLIGHT DISTORTION AT TANK SADDLES, BUT
TANK IS STILL SOUND

SHELL THICKNESSES-

15B - 7/89 TO 11/90 CORROSION RATES OK

15C - 7/89 TO 11/90 CORROSION RATES OK

PICTURES-

FIRST VISIT

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR
FAILURE

PIPE TESTING

INLET-

Date

Time

Pressure

NA

OUTLET-

7/25

1:45 P-3:45 29 PSI OK

SUPPORTS-

OK

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U15D

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK

STRUCTURE- ENDS SHOW SIGNS OF MAJOR DISTORTION. WILL
LOAD TEST TANK & OBSERVE PERFORMANCE

SHELL THICKNESSES-
GAGED SHELL THICKNESS OK

PICTURES- ✓

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING, OR
FAILURE.

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> | |
|-----------|-------------|-------------|-----------------|---|
| TANK | 7/26 | 9:30A | 15 PSI | HELD WITHOUT SIGNS OF DISTRESS, LEAKAGE OR WELD FAILURES OK |
| INLET- | NA | | | |
| OUTLET- | 7/25 | 1:45 P-3:45 | 29 PSI | |
| SUPPORTS- | OK | | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U/G

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK

ENDS - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURES

SHELL THICKNESSES- 7/89 TO 11/90 CORROSION RATES OK

PICTURES- ✓

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR FAILURE

PIPE TESTING

Date

Time

Pressure

INLET-

OUTLET-

7/25

1:45-3:45

30(-) PSI

OK

SUPPORTS-

OK

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U17

DATE: 7-25-91

EXTERIOR REVIEW

PAINT- PAINT ACCEPTABLE

STRUCTURE- FRAME ADEQUATELY BRACED

SHELL THICKNESSES- N.A.

PICTURES- NO

FOUNDATION REVIEW NO SIGNS OF DISTRESS

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | NA | | |
| OUTLET- | NA | | |
| SUPPORTS- | NA | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U18

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- SIDES - OK
ENDS - OK
STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURES

SHELL THICKNESSES- N.A.

PICTURES- FIRST TRIP

FOUNDATION REVIEW

NO SIGNS OF CRACKING, SETTLEMENT OR FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | NA | | |
| OUTLET- | NA | | |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U24

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- TOP - OK
SIDES - OK

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURES
ON PLATFORM

SHELL THICKNESSES- N.A.

PICTURES- ✓

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING OR
FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | NA | | |
| OUTLET- | NA | | |
| SUPPORTS- | OK | | |

CONTAINMENT

SEE SEPARATE SHEET

TANK CERTIFICATION FOR U26 - DISPERSER DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT-COATED WITH YEARS OF SPILLAGE

STRUCTURE- OK

SHELL THICKNESSES- N.A

PICTURES- ✓

FOUNDATION REVIEW

NO SIGNS OF SETTLEMENT, CRACKING
OR FAILURE

PIPE TESTING

Date

Time

Pressure

INLET-

OUTLET-

SUPPORTS-

OVERHEAD RACK
NEEDS X-REACHING 7/25/91

DONE & COMPLETE
9/5/91

CONTAINMENT - SEE SEPARATE SHEET

TANK CERTIFICATION FOR U34

DATE: 7/25/91 2ND VISIT

EXTERIOR REVIEW

PAINT- COATED WITH YEARS OF SPILLAGE

STRUCTURE- NO SIGNS OF DISTRESS OR WELD FAILURE BUT
NEEDS TO BE BOLTED TO FOUNDATION

SHELL THICKNESSES- N.A.

PICTURES- ✓

FOUNDATION REVIEW

NO SIGNS OF CRACKING, SETTLEMENT OR
FAILURE

PIPE TESTING

| | <u>Date</u> | <u>Time</u> | <u>Pressure</u> |
|-----------|-------------|-------------|-----------------|
| INLET- | NA | | |
| OUTLET- | NA | | |
| SUPPORTS- | NA | | |

CONTAINMENT

SEE SEPARATE SHEET

Clean Harbors Kansas, LLC

RCRA Permit Application

Section E

Tank Systems

Appendix E-A - Tank System Assessments and Certifications

Attachment 5, Examples of Containment Coatings

July 25, 1997
Revision No. 8

TECHNICAL BULLETIN
JANUARY 1991

DESCRIPTION AND USES:

SEMSTONE 245 is a high performance specialty coating for concrete. Its unique formulation makes it suitable for constant immersion service in chlorinated solvents, such as:

- Methylene chloride
- Ethylene dichloride
- Trichloroethylene

In addition, SEMSTONE 245 offers excellent resistance to a very broad range of other hazardous and corrosive chemicals including benzene, phenol, ketones, alcohols and chromic acid, as well as such commonly encountered items as 98% sulfuric acid and 50% caustic. This makes it the preferred choice for protecting hazardous waste handling facilities and other areas that will regularly see exposure to a wide variety of difficult chemicals.

Other features include:

- Very rapid cure, providing quick turnaround of projects.
- Can be applied at temperatures as low as 35°F.
- Can be applied over damp concrete.

PACKAGING/COVERAGE:

SEMSTONE 245 is available in 1 gallon, 3 gallon and 25 gallon units. Each unit consists of premeasured Part A and Part B components. A bagged Part C thixotropic agent is added for work on vertical surfaces.

Application thickness may vary from 30 mils to 125 mils, depending on expected service conditions (i.e., chemical exposure, temperature, traffic load and other mechanical abuse, immersion service vs. splash-spill, etc.). Consult Sentry Polymers for specific thickness recommendations.

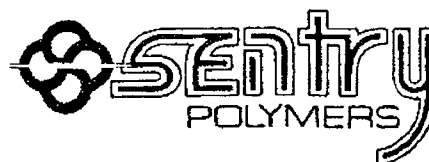
In addition, coverage rates will be effected by the condition of surface being coated (degraded vs. smooth, steel vs. concrete, etc.).

To figure THEORETICAL coverage per gallon, divide desired mil thickness into 1,604. (For example, theoretical coverage for a 60 mil thickness is: 1,604 divided by 60 = 26.73 square feet per gallon.)

For practical coverage, make necessary allowances for condition of the substrate, working conditions, waste, spillage, etc.

SEMSTONE 245

High Performance Coating



P.O. BOX 2076A
5500 E. HWY 332
FREEPORT, TX 77541

409-233-0312
800-231-2544

TYPICAL PROPERTIES:

Solids, by Volume _____ 100%
Color _____ Buff (Selected other colors optional)
Weight per Mixed Gallon _____ 10 lbs.

Cure Times (Approximate):

| <u>Temperature</u> | <u>Foot Traffic</u> | <u>Chemical Service**</u> |
|--------------------|---------------------|---------------------------|
| 35°F _____ | 24 hrs. _____ | 7 days |
| 55°F _____ | 8 hrs. _____ | 48 hrs. |
| 80°F _____ | 4 hrs. _____ | 24 hrs. |

**For immersion service in chlorinated solvents, the coating must be postcured at 150°F for 12 hours.

RELATED AND ANCILLARY PRODUCTS:

SEMSTONE 140 Epoxy Floor Topping
SEMSTONE 140-CT Epoxy Floor Coating - Cold Temperature Formulation
SEMSTONE 140-S Epoxy Coating and Lining
SEMSTONE 300 Epoxy Polymer Concrete
SEM-CRETE Rapid Hardening Underlayment Mortar

Refer to separate technical bulletin on each products for its uses, application instructions, etc.

STORAGE AND SHELF LIFE:

Keep SEMSTONE 245 components tightly sealed in their original containers until ready for use. Store unopened at 50°F - 90°F, out of direct sunlight. At least 24 hours immediately prior to use, store all components (A, B, C, and aggregate) at 80°F - 90°F, to facilitate handling.

Properly stored, SEMSTONE 245 has a minimum shelf life of one year. Refer to batch number on label for date of manufacture.

CHEMICAL RESISTANCE GUIDE

This guide is intended as an aid in determining the potential usefulness of SEMSTONE 245 as a protective barrier against chemical exposure. Each application should be evaluated according to its particular circumstances and conditions.

- KEY: 1 = Suitable for constant immersion
 2 = Suitable for shorter term containment and continual spillage
 3 = Suitable for intermittent spills when followed promptly with water flushing
 NR = Not recommended
 C = Consult Sentry Polymers
 * = This chemical will attack the silica aggregate in the system. When the system is applied, be especially careful that all aggregate is totally encapsulated with SEMSTONE 245.
 ** = For constant immersion service, coating must be postcured 12 hours at 150°F.
 *** = Coating may show some staining or color change when exposed to this chemical.

| RATING | | RATING | | RATING | |
|-----------------------------------|------|---------------------------|------|-----------------------|------|
| Acetic Acid, 10% | 1 | Cyclohexane | 2 | Naphthalene | 1 |
| Acetic Acid, 30% | 2 | Cyclohexanol | 2 | Nitric Acid, 5% | 2*** |
| Acetic Acid, Glacial | 3 | Cyclohexanone | 2 | Nitric Acid, 30% | 3*** |
| Acetone | 1 | Diesel Fuel | 1 | Nitric Acid, 50% | NR |
| Acrylic Acid, up to 25 % | 2 | Diethyl Benzene | 1 | Nitrobenzene | 1 |
| Acrylonitrile | 2 | Dimethyl Aniline | 1 | n-Octyl Alcohol | 1 |
| Adipic Acid | 2 | Epichlorohydrin | 1 | Oils | 1 |
| Alum (Aluminum Potassium Sulfate) | 1 | Ethyl Acetate | 1 | Oleic Acid | 2 |
| Aluminum Chloride | 1 | Ethyl Acrylate | 1 | Oleum | 2*** |
| Aluminum Fluoride | 1* | Ethyl Alcohol | 1 | Oxalic Acid | 2 |
| Aluminum Hydroxide | 1 | Ethyl Benzene | 1 | Perchloroethylene | 1 |
| Aluminum Nitrate | 1 | Ethyl Chloride | 1** | Perchloric Acid | 2 |
| Aluminum Sulfate | 1 | Ethylene Dichloride (EDC) | 1** | Phenol | 2 |
| Ammonia | 2 | Ethylene Glycol | 1 | Phosphoric Acid, 50% | 1 |
| Ammonium Bisulfite | 1 | Fatty Acids | 1 | Phosphoric Acid, 85% | 1 |
| Ammonium Chloride | 1 | Ferric Chloride | 1*** | Phosphorous Acid | 2 |
| Ammonium Hydroxide | 1 | Ferric Nitrate | 1 | Potassium Carbonate | 1 |
| Ammonium Nitrate | 1 | Ferric Sulfate | 1 | Potassium Chloride | 1 |
| Ammonium Sulfate | 1 | Ferrous Chloride | 1 | Potassium Dichromate | 2 |
| n-Amyl Alcohol | 1 | Fluosilicic Acid | 1* | Potassium Hydroxide | 1 |
| Aniline | 1 | Formaldehyde | 1 | Potassium Nitrate | 1 |
| Barium Chloride | 1 | Formic Acid | 2 | Propionic Acid | 2 |
| Barium Hydroxide | 1 | Fuel Oil | 1 | Silver Nitrate | 1*** |
| Barium Sulfate | 1 | Gasoline | 1 | Skydrol | 1 |
| Barium Sulfide | 1 | Glycerine | 1 | Sodium Acetate | 1 |
| Benzene | 1 | Heptane | 1 | Sodium Bicarbonate | 1 |
| Benzene Sulfonic Acid | 1 | Hexane | 1 | Sodium Bisulfate | 1 |
| Benzoic Acid | 1 | Hydrobromic Acid | 2 | Sodium Bisulfite | 1 |
| Black Liquor, Pulp Mill | 1 | Hydrochloric Acid, 15% | 1 | Sodium Carbonate | 1 |
| Bleach | C | Hydrochloric Acid, 37% | 1*** | Sodium Chloride | 1 |
| Boric Acid | 1 | Hydrofluoric Acid | 1* | Sodium Chlorite | 2 |
| Brine | 1 | Hydrogen Peroxide | 2 | Sodium Hydroxide, 10% | 1 |
| Bromide, Liquid | NR | Hydrogen Sulfide | 1 | Sodium Hydroxide, 50% | 1 |
| Bromide Gas (Dry & Wet) | 3 | Isopropyl Alcohol | 1 | Sodium Hypochlorite | C |
| Butyl Acetate | 1 | Jet Fuel | 1 | Sodium Sulfate | 1 |
| Butyl Acrylate | 1 | Kerosene | 1 | Sodium Sulfide | 1 |
| n-Butyl Alcohol | 1 | Lactic Acid | 2 | Stannic Chloride | 1 |
| Butyl Cellulosolve Solvent | 1 | Lauryl Chloride | 1 | Stannous Chloride | 1 |
| n-Butyric Acid | 2 | Lead Acetate | 1 | Stearic Acid | 1 |
| Cadmium Chloride | 1 | Linseed Oil | 1 | Styrene | 1 |
| Calcium Chloride | 1 | Lithium Bromide | 1 | Sugar/Sucrose | 1 |
| Calcium Hydroxide | 1 | Lithium Chloride | 1 | Sulfur Dioxide | 1 |
| Calcium Hypochlorite | C | Lithium Hypochlorite | 1 | Sulfuric Acid, 10% | 1 |
| Calcium Nitrate | 1 | Lithium Hydroxide | 1 | Sulfuric Acid, 50% | 1 |
| Calcium Sulfate | 1 | Magnesium Bisulfite | 1 | Sulfuric Acid, 98% | 1*** |
| Calcium Sulfite | 1 | Magnesium Carbonate | 1 | Tall Oil | 1 |
| Carbon Dioxide Gas | 1 | Magnesium Chloride | 1 | Tannic Acid | 1 |
| Carbon Disulfide | 2 | Magnesium Hydroxide | 1 | Tartaric Acid | 1 |
| Carbon Tetrachloride | 1** | Magnesium Sulfate | 1 | Tetrahydrofuran | 3 |
| Chlorine Dioxide | 2 | Maleic Acid | 2 | Toluene | 1 |
| Chlorine Gas (Dry & Wet) | 3 | Mercuric Chloride | 1 | Toluene Sulfonic Acid | 1 |
| Chlorine Water | 2 | Mercurous Chloride | 1 | Trichloroacetic Acid | 2 |
| Chlorobenzene | 1 | Methanol | 1 | Trichloroethane | 1 |
| Chloroform | 1** | Methyl Chloride | 2 | Trichloroethylene | 1** |
| Chromic Acid, 25% | 1*** | Methylene Chloride | 1** | Trisodium Phosphate | 1 |
| Chromic Acid, 50% | 2*** | Methyl Ethyl Ketone | 1 | Urea | 1 |
| Copper Nitrate | 1 | Methyl Methacrylate | 1 | Water, Deionized | 1 |
| Copper Sulfate | 1 | Mineral Spirits | 1 | Water, Demineralized | 1 |
| Corn Oil | 1 | Monochloroacetic Acid | 2 | Water, Distilled | 1 |
| Crude Oil, Sour | 1 | Monoethanolamine | 1 | Xylene | 1 |
| Crude Oil, Sweet | 1 | Muriatic Acid | 1 | Zinc Chloride | 1 |
| Cupric Ammonium Chloride | 1 | Naphtha | 1 | Zinc Sulfate | 1 |

APPLICATION GUIDELINES

IMPORTANT NOTES

1. Work on vertical surfaces requires the addition of Part C thixotrope.
2. For manual applications, use only 1 gallon and 3 gallon units. The mixed material has a very short pot life, so plan your work accordingly.

TEMPERATURE CONSIDERATIONS

1. Throughout the application process, the temperature of the surface to be coated should be 35°F - 95°F.
2. Below 75°F, the components will thicken noticeably, making manual applications extremely difficult.
3. When coating steel, halt application if the temperature falls within 5°F of the dew point. (This is not necessary when coating concrete.)
4. Bubbles may appear in the SEMSTONE 245 coating if it is applied over concrete in direct sunlight, or when temperatures are rising. This is due to the expansion of air and/or moisture trapped in the concrete. It is especially true of air entrained concrete.

For best results, shade the work area and apply SEMSTONE 245 when temperatures are falling.

5. Store all materials (components A, B, C and aggregate) at 80°F - 90°F for at least 24 hours before use, to facilitate handling.

SURFACE PREPARATION - GENERAL

1. Surfaces must be free of dirt, dust, oil, grease, chemicals and other contaminants immediately prior to applying each coat of SEMSTONE 245.
2. For the initial coat, concrete surfaces can be damp.

However, for recoats, all surfaces must be dry.

SURFACE PREPARATION OF CONCRETE

1. New concrete generally should be cured a minimum of 28 days.

NOTE: Check with Sentry Polymers for recommendations regarding concrete cured less than 28 days.

2. Concrete must be structurally sound and must not contain any accelerators or curing compounds.

3. Remove all oil and grease.

4. Remove all surface laitance and expose sound concrete. We recommend abrasive blasting to do this.

However, other methods, such as acid etching and neutralizing, may be used.

5. In general, any existing coating should be completely removed.

In certain instances, this may not be necessary, but consult with Sentry Polymers first.

Always remove coatings which have failed due to lack of adhesion or thermal shock.

6. Locate all expansion joints, control joints, floor drains, equipment base plates and mid-floor termination points. Handle them as per Sentry's Construction Details.

7. Honeycombs or any form voids in vertical surfaces must be filled.

Above 50°F, use SEMSTONE 140 with Part C thixotrope and aggregate added.

Below 50°F, use SEMSTONE 140-CT with Part C aggregate added.

8. If the concrete is damp:

- a. Flush thoroughly with clear water. Steam or hot water is recommended, if available.

- b. Remove all standing water.

SURFACE PREPARATION OF STEEL (NON-IMMERSION SERVICE ONLY)

1. Abrasive blast steel surfaces to a near white metal finish with 1 - 2 mil anchor profile.
(Ref. SSPC-SP-10)
2. All outside corners must be ground smooth and rounded.
3. Round all inside corners to a minimum 1/2" radius with SEMSTONE 500 Epoxy Putty.

MASKING

Mask surfaces that are not to be coated. This material is difficult to remove, once applied.

APPLICATION EQUIPMENT

1. For spraying, use only a specially equipped plural component rig. Specifications are as follows:

Graco King Hydracat (or equivalent); 28:1 pump; 2.3 GPM, 4:1 mix ratio; inlet air pressure on pump set at 75-120 psi.

Two 15 gallon heated hopper tanks. Set heater at 95°F.

In-line heater on resin outlet, set at 110° F.

High pressure solvent pump.

Insulated hoses. 3/8 in. ID, maximum length of 100 ft.

Graco Silver Gun, or equivalent, equipped with a reversible, self-cleaning tip, orifice size .035 - .041 inches.

No filters or internal screens.

2. For manual applications:

- a. Floors - preferred method is to spread with serrated squeegee, then backroll.

As a second choice, trowel or brush could be used.

- b. Walls - use roller or brush.

MIXING AND APPLICATION

1. The components must be individually agitated immediately prior to use:

Part A - Blend each Part A component to a uniform consistency in its individual container, using a Jiffy type mixer.

Part B - Stir each Part B component to a uniform color in its individual container.

2. For work on vertical surfaces, add Part C.

Part C comes in premeasured bags.

For a one gallon unit and three gallon units, add one premeasured bag to each Part A.

For 25 gallon units, add one premeasured bag to each bucket of Part A and each bucket of Part B. (NOTE - There are 4 buckets of Part A and one bucket of Part B in a 25-gallon unit.)

Using a Jiffy type mixer, blend the Part C in until it is evenly dispersed, (about 1 - 2 minutes).

NOTE: Adding Part C darkens the color of SEMSTONE 245 somewhat.

3. Skip this step if you are spraying.

If mixing for application by hand:

Pour Part A into a clean mixing container of adequate capacity.

Add Part B.

Mix thoroughly for two minutes using a Jiffy type mixer.

The pot life of the mixed material will be about 15 minutes at 80°F. So, use immediately. For work on floors, etc., we suggest that you immediately dump the mixed material onto the surface and spread it.

NOTE: The premeasured quantities of each component have been carefully set. Any variation in these premeasured ratios will adversely effect performance. So, mix only complete units. If any of the components are spilled, discard the batch.

Material should be applied in even coats.

If spraying, use multidirectional passes to insure positive coverage and a proper film build.

If you notice a marbling or streaking effect while spraying, stop immediately. The spray equipment is not mixing the material properly or the mix ratios are incorrect. Check your equipment.

This marbled or streaked material will not cure properly and must be removed. Scrape the material off and then solvent wash the area with MEK or toluene. Alternately, abrasive blasting may be used to remove the material. In either case the end result is to have a non-sticky surface to recoat.

5. Adding aggregate:

a. Horizontal surfaces

To obtain a thicker coating and/or a nonskid finish, aggregate may be broadcast into the coating before it begins to set.

Since SEMSTONE 245 sets quickly, you must plan the work carefully. One worker should apply the coating, and another should follow immediately, broadcasting the aggregate. However, keep the work separated. Do not allow aggregate to be broadcast ahead of the applicator.

Broadcast aggregate until dry layer is achieved.

Allow the coating to cure.

Remove the excess aggregate.

Use only clean, dry, bagged and well graded 20/40 mesh silica or quartz sand containing not less than 97.5% silicon dioxide. Aggregate may be either round or angular.

When broadcasting aggregate in a large or congested area, it may be desirable for workers to wear spiked shoes to enable them to walk out onto the coating without disturbing it.

An optional topcoat of SEMSTONE 245 may be applied to protect the aggregate and obtain a more cleanable surface. The topcoat should be of neat material applied at a cover rate of 150 - 160 sq. ft. per gallon. The surface must be

kept dry and free of contamination prior to applying this topcoat.

b. Vertical surfaces

Refer to Sentry's supplemental guidelines for adding Part C and sand.

6. Prepare surfaces for intercoat adhesion as follows:

- Allow SEMSTONE 245 to cure until jelled before recoating.
- If the surface has cured firm to the touch, but less than 24 hours, it must be washed with soap and water, rinsed and dried before recoating.
- Surfaces cured beyond 24 hours must be washed with soap and water, rinsed, dried and lightly sanded or abrasive blasted.
- Important: While SEMSTONE 245 can be applied over damp concrete, for recoating, the surface must be dry.

7. Post-curing for immersion service in chlorinated solvents:

The coating must be postcured if it will be used for continuous immersion service in chlorinated solvents.

Tarp the coated area and heat it at 150°F for at least 12 hours.

8. Spark Testing Steel

Spark testing is recommended for coated steel in immersion service.

$$\text{Voltage setting} = 1250 \times \sqrt{\text{Coating Thickness (in mils)}}$$

- If work is interrupted, and at the end of the day, terminate the coating in a straight line.

CLEANUP

Clean all tools and equipment with Xylene, MEK or toluene.

SAFETY PRECAUTIONS

FOR INDUSTRIAL USE ONLY.

Both the mixed product and its separate A and B components can be extremely irritating to skin, eyes and the respiratory system.

Avoid contact with eyes and skin; do not ingest or inhale.

When spraying in a confined area, wear a fresh air hood and make provision for forced ventilation.

At all other times, wear a NIOSH approved respirator suitable for organic vapors when working with this product or its components.

When working with SEMSTONE 245, always wear chemical goggles, rubber gloves, and appropriate work clothing.

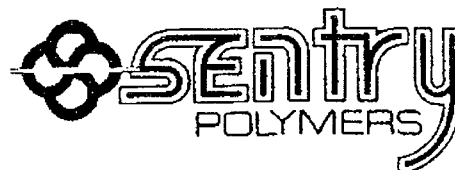
Prolonged or repeated exposure to the unreacted Part A and Part B components of SEMSTONE 245 may cause skin irritation or allergic reactions.

Refer to material safety data sheets regarding individual components.

NOTES:

NOTICE TO CUSTOMERS

We believe the information in this technical bulletin to be accurate; it is offered in good faith for your benefit. However, no guarantee of its accuracy is given or implied. Since the conditions of use are beyond our control, we suggest you make your own evaluation of these recommendations and suggestions. We guarantee our products to conform to our manufacturing standards. We assume no responsibility for coverage, performance or injuries resulting from use. Liability, if any, is limited to replacement of our products.



P. O. BOX 2076A
5500 E. HWY 332
FRELPORT TX 77541

409-233-0312
800-231-2544

-SILOXIRANE®-C2033-

AMBIENT CURE PROTECTIVE LINING FOR CEMENT CONTAINMENT AREAS,
DIKES, FLOORS, PITS, ETC. HANDLING SOLVENTS, ACIDS, CAUSTICS

DISCRIPTION

Siloxirane C-2033 is a two component ambient cure coating with outstanding corrosion resistance. It is a cross linked organic/inorganic thermoset polymer capable of resisting sulphuric acid, hydrochloric acid, nitric acid, glacial acetic acid, methylene chloride, methanol, acetone, caustics and hypochlorites.

APPLICATION

Siloxirane C-2033 can be applied by spray, brush or roller. For areas of heavy traffic, use Siloxirane C-2033 Non-Slip as the second coat.

| | | |
|---------------|------------------|----------|
| Cure Time: | Foot traffic | 12 hours |
| @ 75°F (24°C) | Vehicle traffic | 24 hours |
| | Chemical service | 72 hours |

SUMMARY OF BENEFITS

- Broad range of chemical resistance
- Steam cleanable
- Unique temperature span: -80°F to +200°F
- Non-absorbent
- Maintains a tough, hard surface
- Easily patched by maintenance personnel
- Outstanding abrasion wear resistance
- Excellent adhesion, even with flexing

AREAS OF USAGE

- Solvent containment pits and dikes
- Waste water pits
- Waste acid pits
- Acid troughs
- Oil and gasoline containment areas
- Gasohol containment areas
- Acid tank containment dikes
- Corrosion resistant flooring
- Tank coatings
- Coating of steel structures

TYPICAL PROPERTIES

- Finish Oyster White
Can be colored as required
- Weight per Gallon 11.0 lbs.
- V.O.C. Level 0.85 lbs. per gallon
96.0 grms per liter
- Lead Content Zero
- Kit Size 3 Gallons C2001 Resin
40.0 Ounces C2033 Catalyst
C2033 Catalyst
- Activator 120 minutes at 80°F and
50% rel. hum. (1 lb.)
45-60 minutes (3 gals.)
- Viscosity 300-500 Centistokes
- Flash Point 53°C
- Solids by Volume 87.4%
- Solids by Weight 94.0%
- Chromate Content Zero
- Theoretical Coverage 1360 sq. ft. per
gal. at 1 mil DFT
- Recommended DFT 18-20 mils dry
20-21 mils wet
- Shelf Life One year minimum when
stored at 50-90°F



ADVANCED
POLYMER SCIENCES, INC.

AVON, OHIO 44011 USA

800 334-7193

TELEX 985504

FAX 216/937-5046

—SILOXIRANE®—C2033—

Performance and Economical Excellence

PERFORMANCE

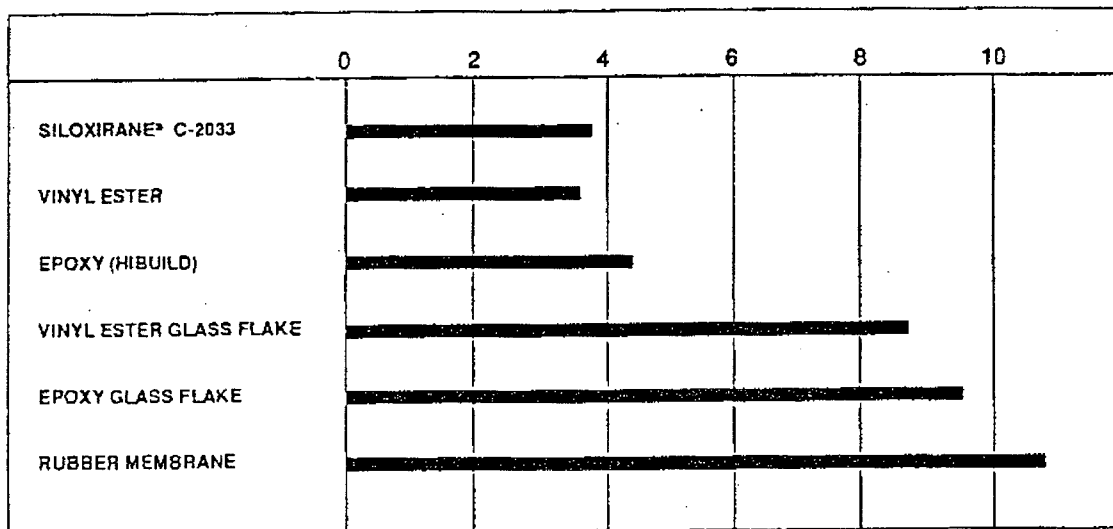
| | | Glacial Acetic Acid | Acetone | Ammonium Chloride | Ammonium Hydroxide | Benzene | Black Liquor (Paper) | Bromine Water | Carbon Tetrachloride | Chlorine Water | Chlorobenzene | Chromic Acid, 30% | Ochlorobenzene | Dimethylformamide | Ethanol | Formaldehyde | Furfural Alcohol | Gasoline | Hydraulic Oil | Hydrochloric Acid, 0.37% | Jet Fuel | Kerosene | Methanol | Methylene Chloride | MEK | MIBK | Monochloroacetic Acid | Nickel Plating | Nitric Acid, 50% | Sodium Chloride | Sodium Hydroxide | Sulfuric Acid, 17% | Sulfuric Acid, 70% | Toluene | Trichloroethylene | White Liquor (Paper) | | |
|-------------------|---|---------------------|---------|-------------------|--------------------|---------|----------------------|---------------|----------------------|----------------|---------------|-------------------|----------------|-------------------|---------|--------------|------------------|----------|---------------|--------------------------|----------|----------|----------|--------------------|-----|------|-----------------------|----------------|------------------|-----------------|------------------|--------------------|--------------------|---------|-------------------|----------------------|---|---|
| SILOXIRANE C-2033 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | |
| VINYL ESTER | N | N | A | A | A | A | N | A | A | N | N | N | N | A | A | L | A | A | A | A | A | L | N | L | L | N | N | A | L | A | N | A | A | N | A | N | A | |
| EPOXY (HIBUILD) | N | N | A | A | N | A | N | N | N | N | A | N | N | N | A | N | A | L | A | N | A | N | N | N | N | N | N | A | N | A | L | N | A | A | N | A | N | A |
| RUBBER | L | N | A | A | N | A | N | N | A | N | A | - | N | L | N | N | N | L | A | L | L | N | N | N | N | N | - | A | A | A | N | A | A | A | N | N | L | |

A = Good at ambient temperatures
L = Limited Service

N = Not recommended
- = No information

ECONOMY

Total Applied Cost per Square Foot



• Based on 4000 square foot area - 2 coat application on concrete surface.



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—SILOXIRANE[®]—C2033—

PHYSICAL PROPERTIES

| | | | | |
|--|----------------------------|--------------------------------|---|---|
| • Tensile Strength (ASTM D638) | 40°F 75°F | 12,900 p.s.i. 11,340 p.s.i. | • Hardness | 75-78 Barcol |
| • Flexural Strength • Flexural Modulus (ASTM D790) | | 18,650 p.s.i. 0.816 k.s.i. | • Permeability - Vapor Transmission of Water at 90°C for 7 Days | 0.0000 gm per sq. ft. per 7 days per inch thickness |
| • Elongation | -40°F 75°F | 5.09% 4.38% | • Impact Resistance (ASTM D2794) | 37 in/lbs |
| • Water Absorption (ASTM D570) | (30 days in 88°C Water) | 0.25% | • U.V. Light Resistance (ASTM G53) | 40+ years |

APPLICATION DATA

SURFACE PREPARATION

Sandblast with clear sand or grit to obtain an anchor pattern. All oils, soluble salts and loose concrete must be removed and the surface degreased. Concrete must have cured at least 30 days at 70°F.

MIXING INSTRUCTIONS

Material is supplied in two containers as a unit. Always mix a complete unit in the proportions supplied. (1) Thoroughly mix the contents of Part A with a power agitator until uniform consistency and color is obtained. Be sure that any solids that may have settled through storage have been put back in suspension. (2) Slowly combine the contents of the activator with the previously mixed Part A. (3) Thoroughly mix the two parts until a uniform consistency and color is obtained. (4) Use immediately due to short pot life.

LIMITATIONS

Apply in good weather when the air and surface temperatures are above 60°F. Surface temperatures must be at least 5° above the dew point. For optimum application properties, bring material to 70°-90°F prior to mixing and application. Increased temperatures will result in shorter pot life.

APPLICATION

Airless spray equipment with 30:1 pump ratio @ 80-100 lbs. to achieve 2400-3000 p.s.i. tip pressure. Reverse-A-Clean tip .019 to .023, with 3/8" fluid hose, 1/4" by 6' whip hose, with a maximum of 100 linear feet. This coating is a low VOC compliance material. If conditions require a viscosity adjustment, thin with MEK.

CLEAN UP SOLVENT

Acetone, MEK



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APPLICATION DATA (cont.)

CURE TIME AND TEMPERATURE

Curing at Ambient Temperatures

The temperature should be at 60°F or above. Lining will lose tackiness and become hard in 2 to 4 hours, depending on the prevailing temperature. Full curing will occur in 2 to 7 days, depending on temperature. Allow second coat to dry 24 hours before walking or driving on it.

COVERAGE

Theoretical at recommended film thickness - 75 sq. ft. per gallon

Practical at recommended film thickness - 60-65 sq. ft. per gallon

HANDLING PRECAUTIONS

Solvents and chemicals are contained in this product. Consult the Material Safety Data Sheet for details. Adequate safety and health precautions should be taken during handling, application and drying of this product. This material should be applied under local, state and federal regulations and in accordance with OSHA and ANSI bulletins on safety requirements.

PACKAGING

3 Gallon Kit consists of:

3 gallons C2001 Resin

40 oz. C2033 Catalyst

The furnishing of the information contained herein does not constitute a representation by Advanced Polymer Sciences, Inc. that any product or process is free from patent infringement claims of any third party nor does it constitute the grant of a license under any patent of Advanced Polymer Sciences, Inc. or any third party. Advanced Polymer Sciences, Inc. assumes no liability for any infringement which may arise out of the use of the product. Advanced Polymer Sciences warrants that its products meet the specifications which it set for them. Advanced Polymer Sciences, Inc. DISCLAIMS ALL OTHER WARRANTIES relating to the products and DISCLAIMS ALL WARRANTIES RELATING TO THEIR APPLICATION expressed or implied INCLUDING but not limited to warranties of MERCHANTABILITY AND FITNESS for particular purpose. Receipt of products from Advanced Polymer Sciences, Inc. constitutes acceptance of the terms of the Warranty contrary provisions of purchases orders notwithstanding. In the event that Advanced Polymer Sciences, Inc. finds that products delivered are off-specification, Advanced Polymer Sciences, Inc. will, at its sole discretion, either replace the products or refund the purchase price thereof and Advanced Polymer Sciences, Inc. choice of one of these remedies shall be Buyer's sole remedy. Advanced Polymer Sciences, Inc. will under no circumstances be liable for consequential damages except insofar as liability is mandated by law. Advanced Polymer Sciences, Inc. will deliver products at agreed times insofar as it is reasonably able to do so, but Advanced Polymer Sciences, Inc. shall not be liable for failure to deliver on time when the failure is beyond its reasonable control.



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Clean Harbors Kansas, LLC

RCRA Permit Application
Section E
Tank Systems
Appendix E-B - Tank Drawings

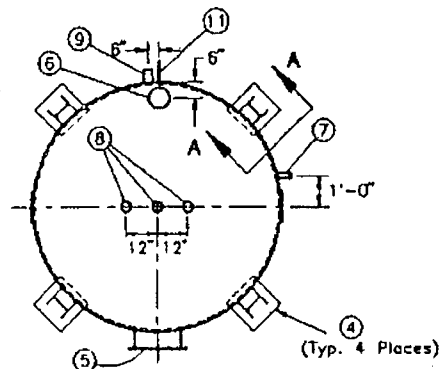
Appendix E-B

Tank Drawings

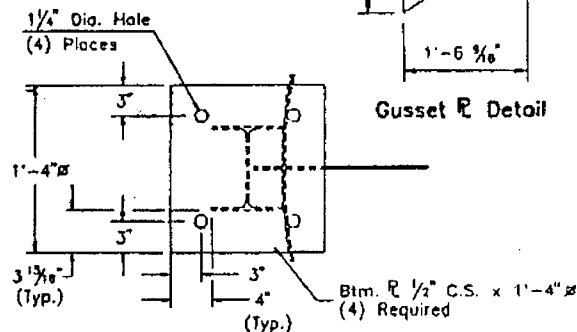
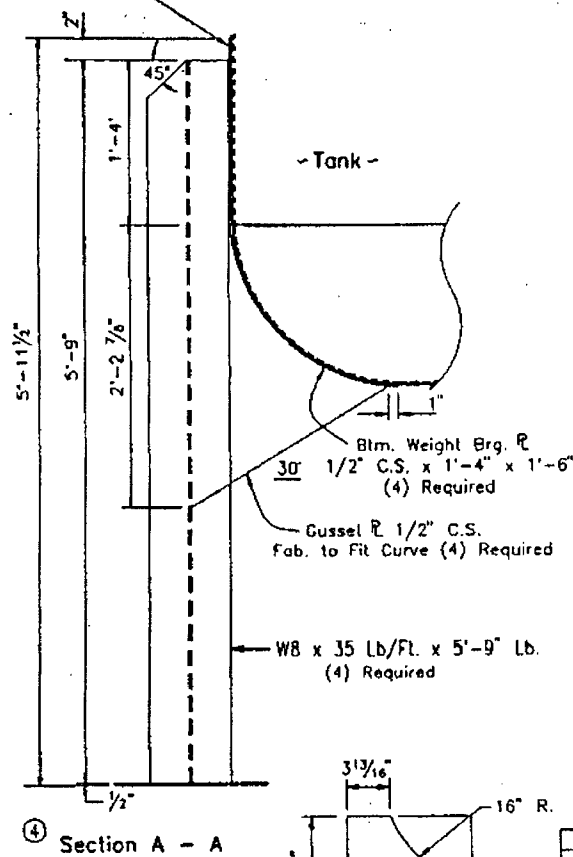
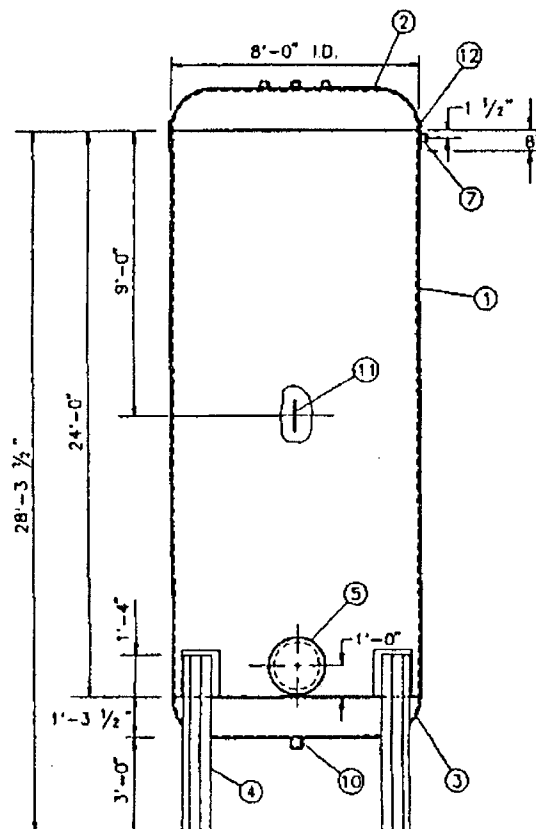
List of Drawings

| <u>Drawing Number</u> | <u>Tank Description</u> | <u>Tank Designation</u> |
|-----------------------|---|-----------------------------------|
| 50-56-V1-001 | Tank: 7,363 gallon Maximum Capacity | V-1, V-3, V-4, V-7, V-8 |
| 50-56-V2-001 | Tank: 7,084 gallon Maximum Capacity | V-2 |
| 50-56-V5-001 | Tank: 20,895 gallon Maximum Capacity | V-5, V-6 |
| 50-56-V9-001 | Tank: 5,078 gallon Maximum Capacity | V-9, V-10, V-11, V-12, V-13, V-14 |
| 50-56-V15A-001 | Tank: 2,659 gallon Maximum Capacity | V-15A |
| 50-56-V15B-001 | Tank: 2,659 gallon Maximum Capacity | V-15B, V-15C, V-15D |
| 50-56-V16-001 | Tank: 9,028 gallon Maximum Capacity | V-16 |
| 50-56-V17-001 | Tank: 522 gallon Maximum Capacity | V-17 |
| 50-56-V26-001 | Tank: 1,155 gallon Maximum Capacity | V-26 |

July 25, 1997
Revision No. 8

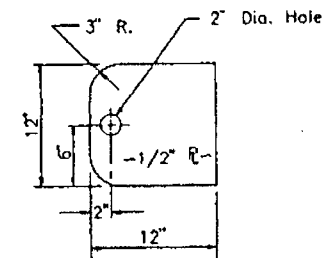


Side Weight Brg. $\frac{1}{2}$ " C.S. x 1'-4" x 1'-6" (4) Required

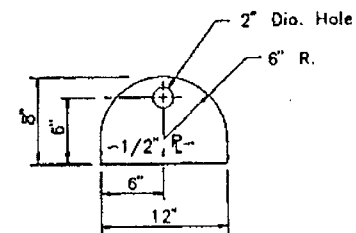


Specifications:

- 1.) Tank Btm. to be $\frac{1}{4}$ " C.S. & S.A.36
Sides to be $\frac{3}{16}$ " C.S.P.L. & S.A.36
Top to be $\frac{1}{4}$ " C.S. L.P. & S.A.36
- 2.) Primer w/1-coat Red Oxide & Paint w/1-coat Tank White
- 3.) Tank to be Built per API 620, Replacing API 620 Section #2 on Materials w/API 650 Appn. A
- 4.) PSIG Hydrotest
- 5.) PSIG Working Pressure



12 Top Crane Hook



11 Middle Crane Hook

| Item | Qty. | Description |
|------|------|--|
| 12 | 2 | Top Crane Hooks - See Detail |
| 11 | 1 | Middle Crane Hook - See Detail |
| 10 | 1 | 3" 3000 Lb. 1/2 Cplg. |
| 9 | 1 | 2 1/2" 3000 Lb. 1/2 Cplg. |
| 8 | 3 | 2" 3000 Lb. 1/2 Cplg. |
| 7 | 1 | 1" 3000 Lb. 1/2 Cplg. |
| 6 | 1 | Sentinel Mfg. Co. #36 8" Thief Hatch |
| 5 | 1 | Clay & Bailey #1820 18" Dia. Manhole |
| 4 | 4 | Leg Assembly - See Details |
| 3 | 1 | 1/4" Bottom Head 8'-0" I.D. S.A. 36 |
| 2 | 1 | 1/4" Top Head 8'-0" I.D. S.A. 36 |
| 1 | 1 | 3/16" Shell 8'-0" I.D. S.A. 36 24'-0" Long |

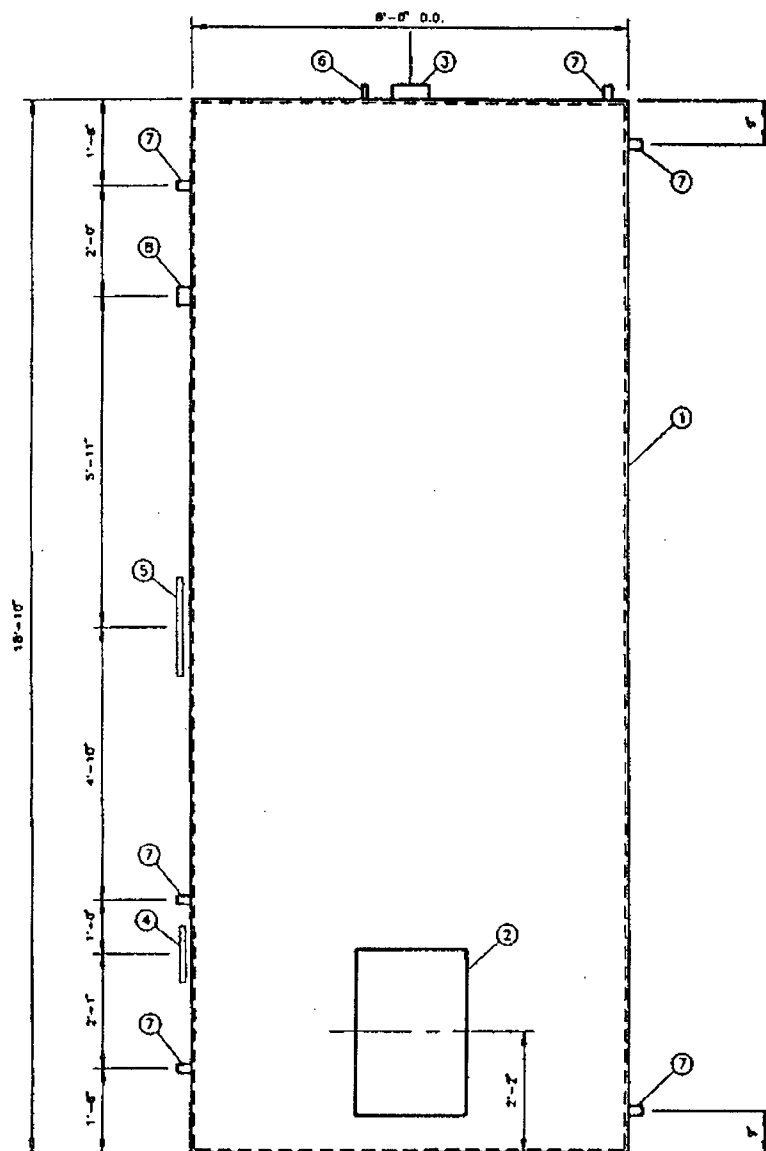
HYDROCARBON RECYCLERS, INC.

2549 N. NEW YORK AVE. WICHITA, KANSAS 67219

Scale 3/4" = 1'-0" Date: 1-78-82 Drawn by: ProDgnl

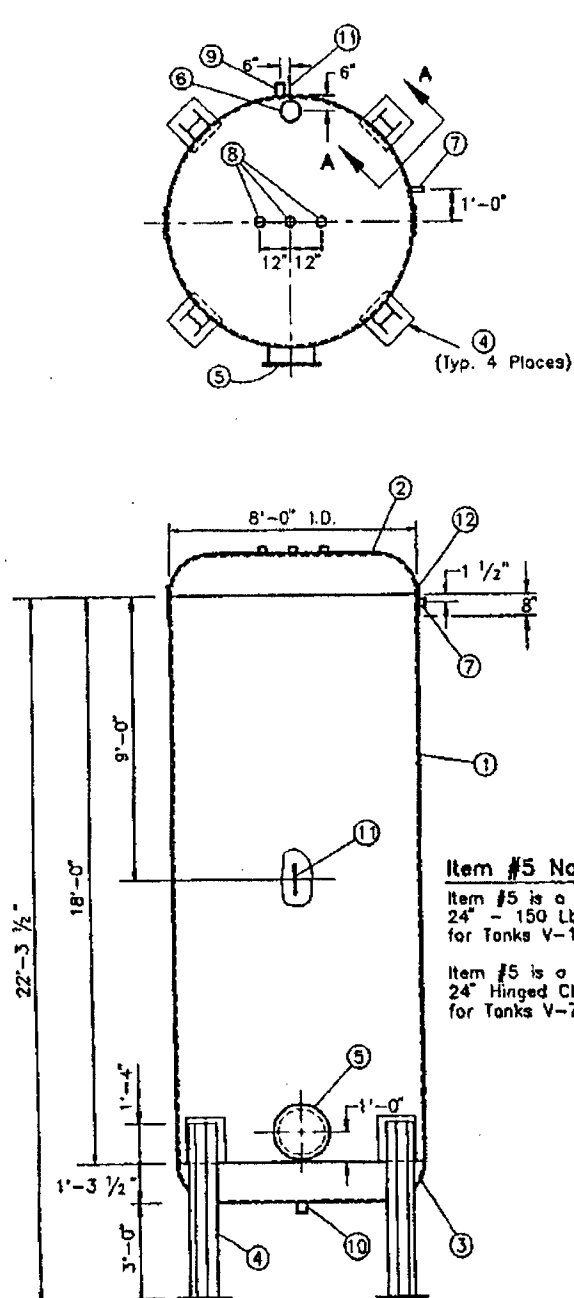
TANK: 7,383 GALLON MAXIMUM CAPACITY

V-1, V-3, V-4, V-7 & V-8 50-56-V1-001



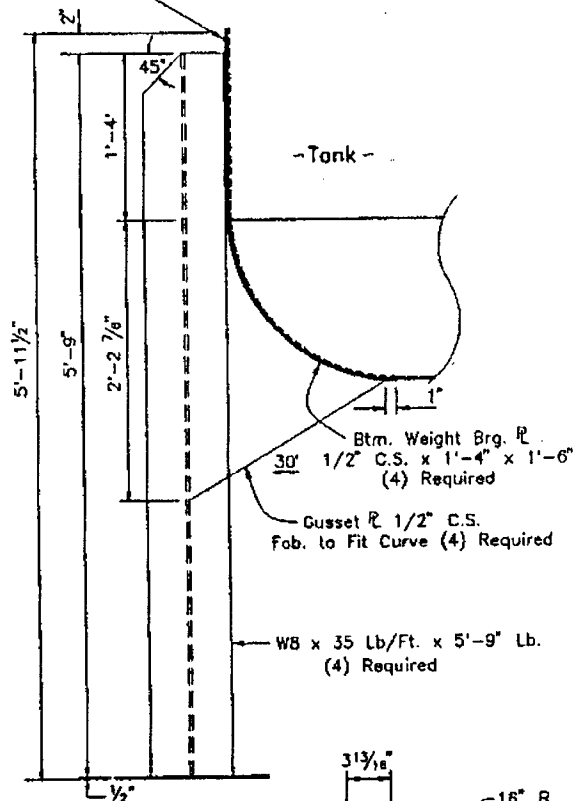
U.L. Number 165232

| Item | Qty. | Description |
|---|------|---|
| 8 | 1 | 4" Coupling |
| 7 | 5 | 2" Coupling |
| 6 | 1 | 1" Coupling |
| 5 | 1 | 18" 150# RF |
| 4 | 1 | 10" 150# RF |
| 3 | 1 | 8" Thief Hatch |
| 2 | 1 | 2' X 3' Manway |
| 1 | 1 | 3/16" Shell 8'-0" O.D., S.A. 36, 18'-10" Long |
| HYDROCARBON RECYCLERS, INC. | | |
| 2549 N. NEW YORK AVE. WICHITA, KANSAS 67219 | | |
| Scale: 1 1/2" = 1'-0" | | Drawn by: ProDent |
| Date: 1-22-82 | | |
| TANK: 7,084 GALLON MAXIMUM CAPACITY | | |
| V-2 | | 50-56-V2-001 |

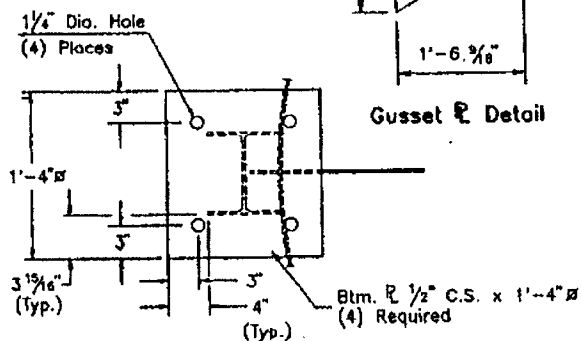


Item #5 Note:
 Item #5 is a
 24" - 150 Lb. RF Flange
 for Tanks V-1, V-3 & V-4.
 Item #5 is a
 24" Hinged Closure
 for Tanks V-7 & V-8.

Side Weight Brg. $\frac{1}{2}$ " C.S. x
 1'-4" x 1'-6" (4) Required

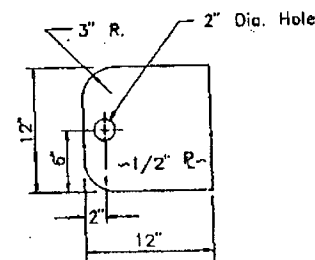


Section A - A

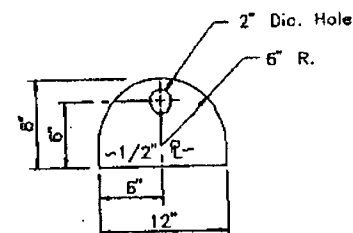


Specifications:

- 1.) Tank Btm. to be $\frac{1}{4}$ " C.S. & S.A.36
 Sides to be $\frac{3}{16}$ " C.S.P.I. & S.A.36
 Top to be $\frac{1}{4}$ " C.S. I.P. & S.A.36
- 2.) Primer w/1-coat Red Oxide &
 Paint w/1-coat Tank White
- 3.) Tank to be Built per API 620,
 Replacing API 620 Section #2
 on Materials w/API 650 Appn. A
- 4.) PSIG Hydrotest
- 5.) PSIG Working Pressure



Top Crane Hook



Middle Crane Hook

| Item | Qty. | Description |
|------|------|--|
| 12 | 2 | Top Crane Hooks - See Detail |
| 11 | 1 | Middle Crane Hook - See Detail |
| 10 | 1 | 5' 3000 Lb. 1/2 Cplg. |
| 9 | 1 | 2 1/2" 3000 Lb. 1/2 Cplg. |
| 8 | 3 | 2" 3000 Lb. 1/2 Cplg. |
| 7 | 1 | 1" 3000 Lb. 1/2 Cplg. |
| 6 | 1 | Sentinel Mfg. Co. #56 6" Thief Hatch |
| 5 | 1 | See Item #5 Note |
| 4 | 4 | Leg Assembly - See Details |
| 3 | 1 | 1/4" Bottom Head 8'-0" I.D. S.A. 36 |
| 2 | 1 | 1/4" Top Head 8'-0" I.D. S.A. 36 |
| 1 | 1 | 3/16" Shell 8'-0" I.D. S.A. 36 24'-0" Long |

HYDROCARBON RECYCLERS, INC.

2549 N. NEW YORK AVE. WICHITA, KANSAS 67218

Scale: 3/8" = 1'-0"

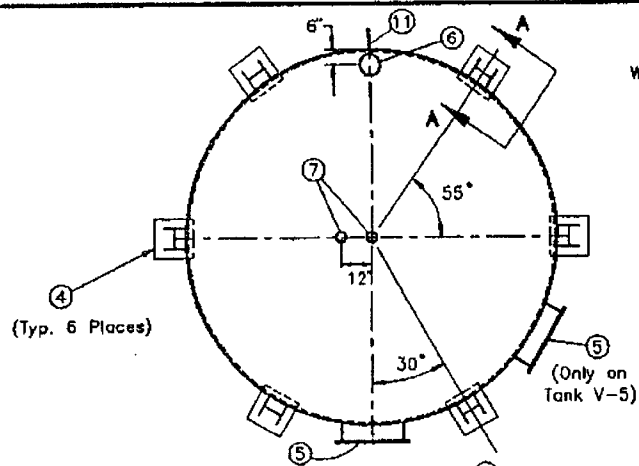
Date: 7-7-82

Drawn by: ProBrett

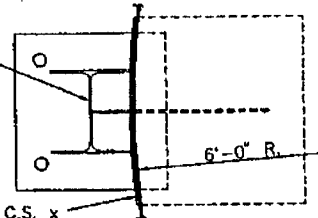
TANK: 7,363 GALLON MAXIMUM CAPACITY

V-1, V-3, V-4, V-7 & V-8

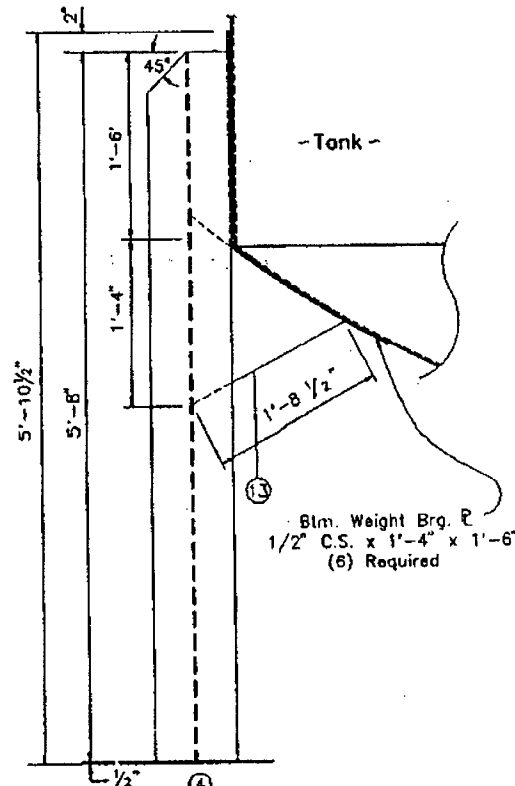
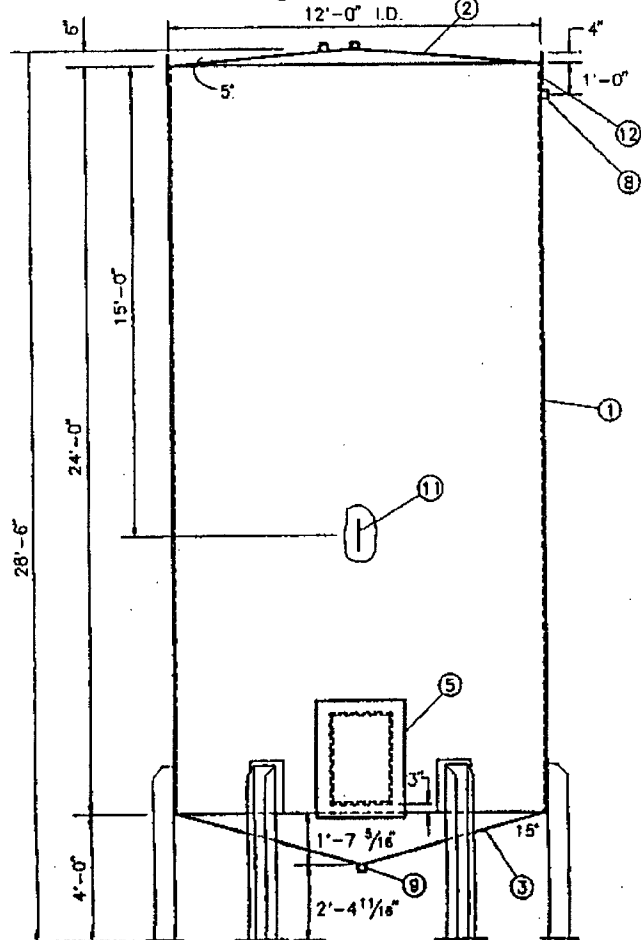
50-58-VI-001



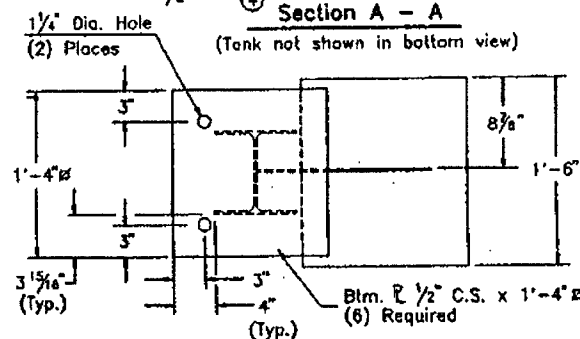
WB x 35 (lb./ft. x 5'-8" Lb.)
(6) Required



Side Weight Brg. \bar{R} 1/2" C.S. x
1'-4" x 1'-8" (6) Required

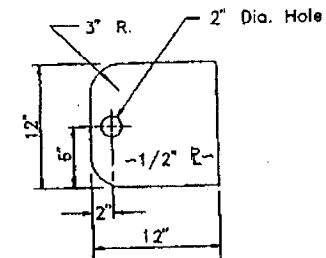


Section A - A
(Tank not shown in bottom view)

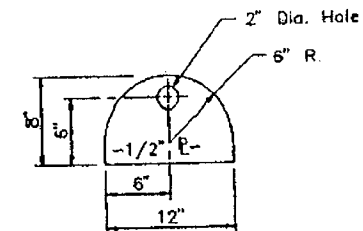


Specifications:

- 1.) Tank Blm. to be 5/16" C.S. & A36
Sides to be 1/4" C.S. \bar{R} & A36
Top to be 3/16" C.S. \bar{R} & A36
- 2.) Primer w/1-coat Red Oxide &
Paint w/1-coat Tank White
- 3.) Tank to be Built per API 620.
Replacing API 620 Section #2
on Materials w/API 650 Appn. A



Top Crane Hook



Middle Crane Hook

* 2 Manways required on Tank V-5

| Item | Qty. | Description |
|------|-------|---|
| 13 | 6 | Gusset \bar{R} 1/2" C.S. 1'-4" x 1'-4" x 1'-8 1/2" |
| 12 | 2 | Top Crane Hooks - See Detail |
| 11 | 1 | Middle Crane Hook - See Detail |
| 10 | 1 | 3" 3000 Lb. Full Cplg. |
| 9 | 1 | 4" 3000 Lb. 1/2 Cplg. |
| 8 | 1 | 3" 3000 Lb. 1/2 Cplg. |
| 7 | 2 | 2" 3000 Lb. 1/2 Cplg. |
| 6 | 1 | Cloy & Bailey #54 8" Thief Hatch |
| 5 | 1 (2) | 3'-0" X 2'-0" Std. Manway w/Cover |
| 4 | 6 | Leg Assembly - See Details |
| 3 | 1 | 5/16" Bottom Head 12'-0" I.D. A. 36 |
| 2 | 1 | 3/16" Top Head 12'-0" I.D. A. 36 |
| 1 | 1 | 1/4" Shell 12'-0" I.D. A. 36 24'-0" Long |

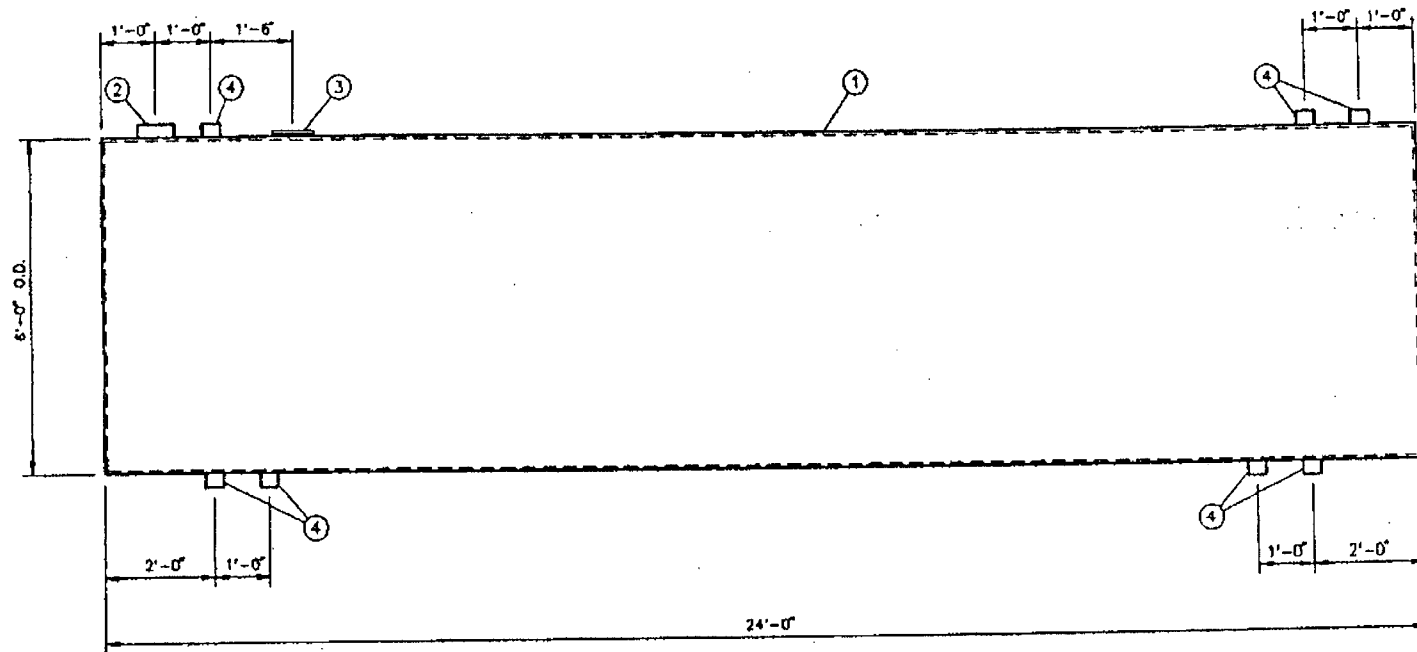
HYDROCARBON RECYCLERS, INC.
2548 N. NEW YORK AVE. WICHITA, KANSAS 67219

Scale: 3/8" = 1'-0"
Date: 7-7-82

TANK: 20,895 GALLON MAXIMUM CAPACITY

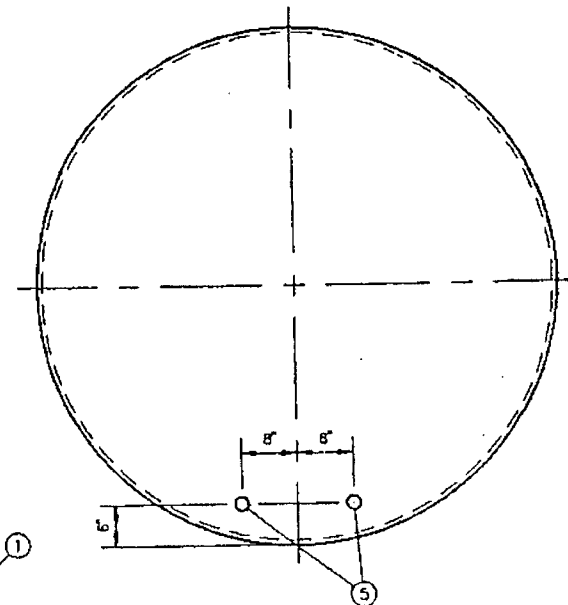
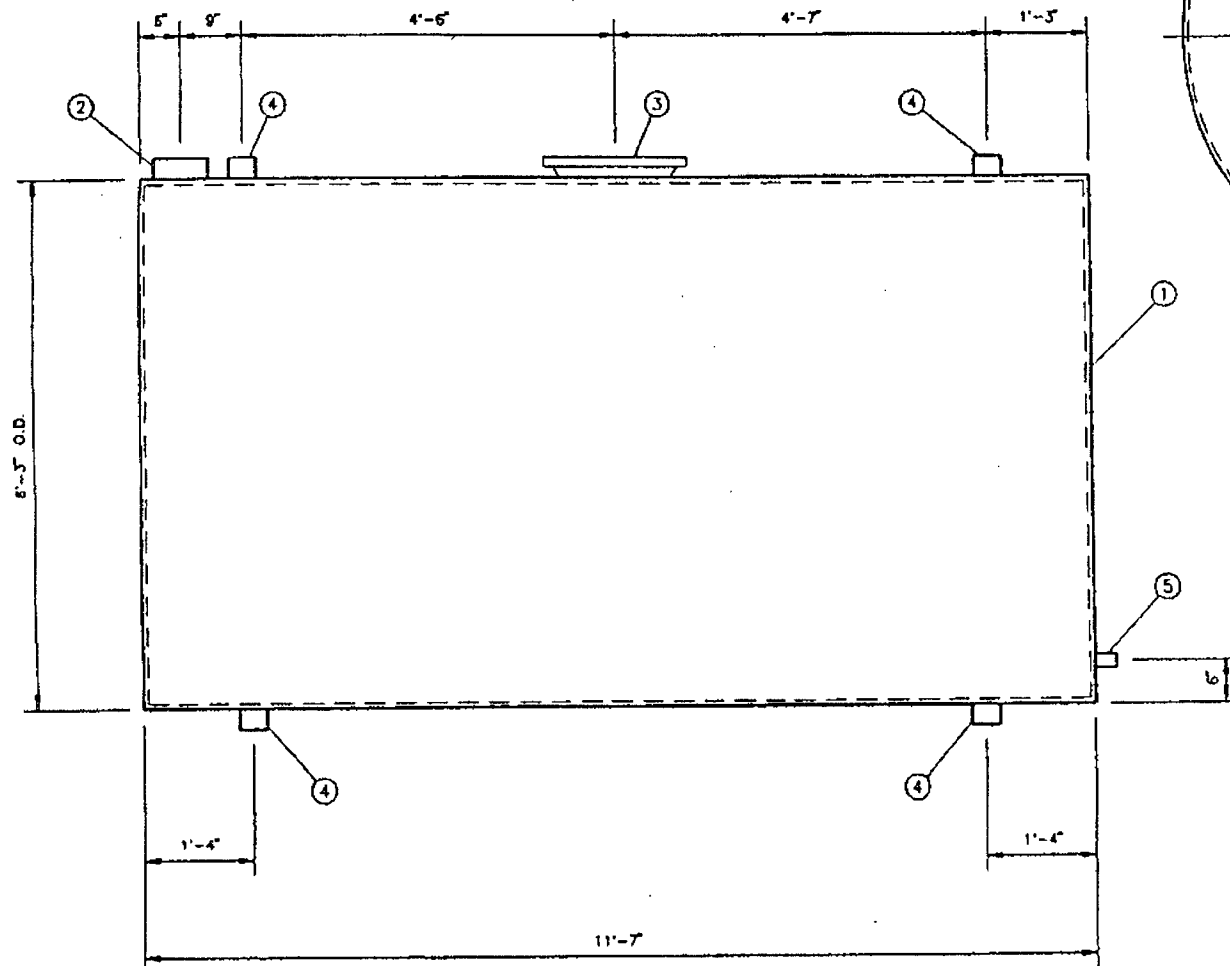
V-5 & V-6

90-45-115-001

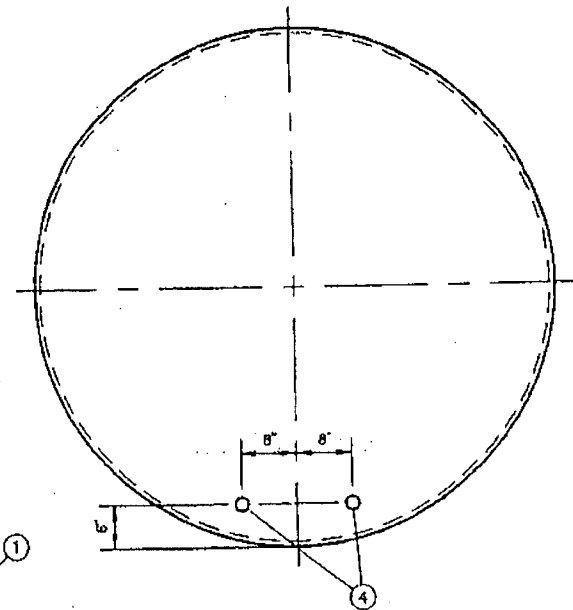
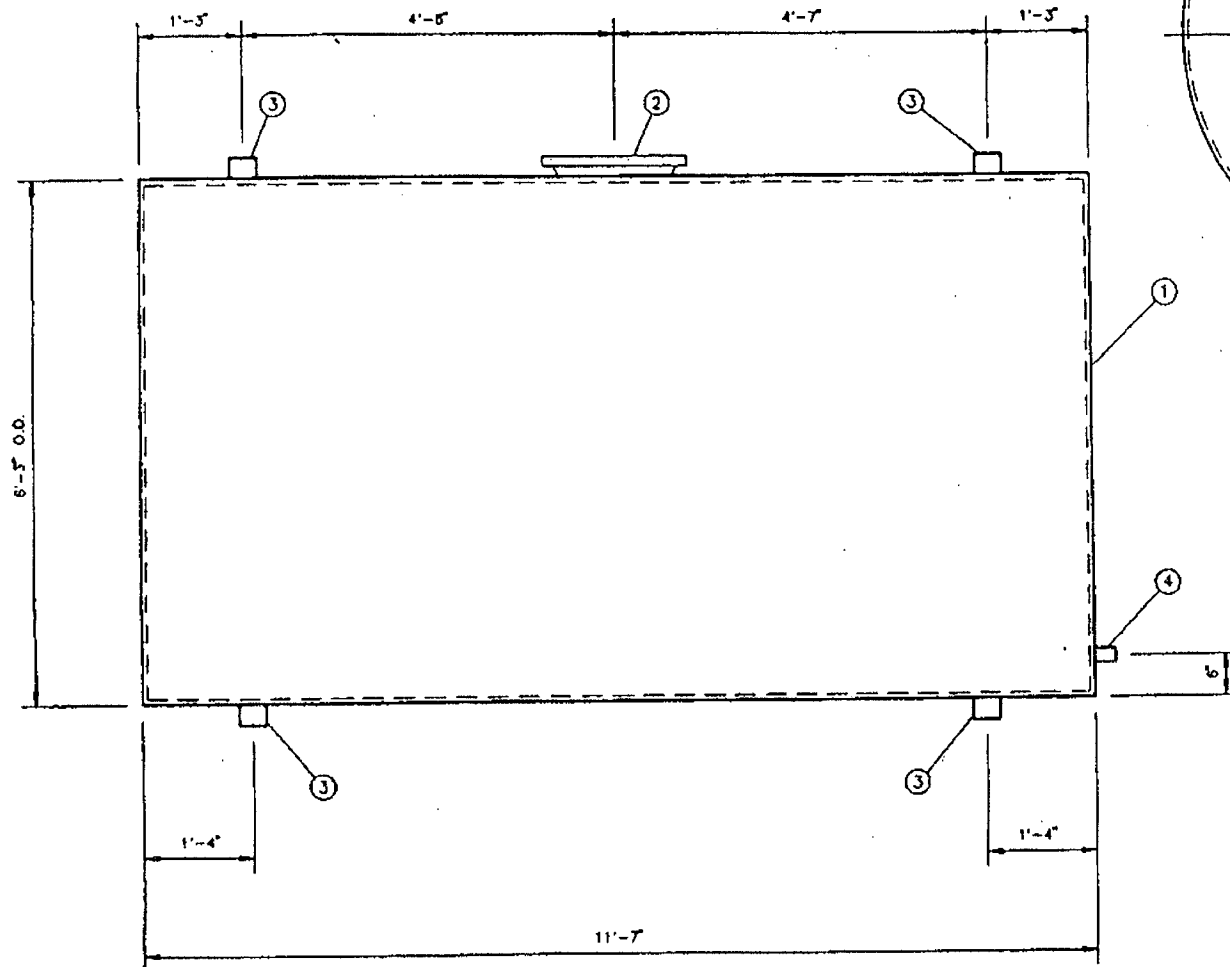


| U.L. Numbers | |
|--------------|--------|
| V-9 | 98448 |
| V-10 | 98447 |
| V-11 | 98444 |
| V-12 | 98446 |
| V-13 | 104275 |
| V-14 | 98445 |

| Item | Qty. | Description |
|---|---------------|--|
| 4 | 7 | 6" Coupling |
| 3 | 1 | 6" ISO RF |
| 2 | 1 | 6" Tefl Hatch |
| 1 | 1 | 3/16" Shell 6'-0" O.D., 5A, 38, 24' Long |
| HYDROCARBON RECYCLERS, INC. | | |
| 2549 N. NEW YORK AVE. WICHITA, KANSAS 67219 | | |
| Scale: 1 1/2" = 1'-0" | Date: 1-22-92 | |
| TANK: 5,075 GALLON MAXIMUM CAPACITY | | Drawn by: ProDIN |
| V-9 THRU V-14 | 50-56-V9-001 | |

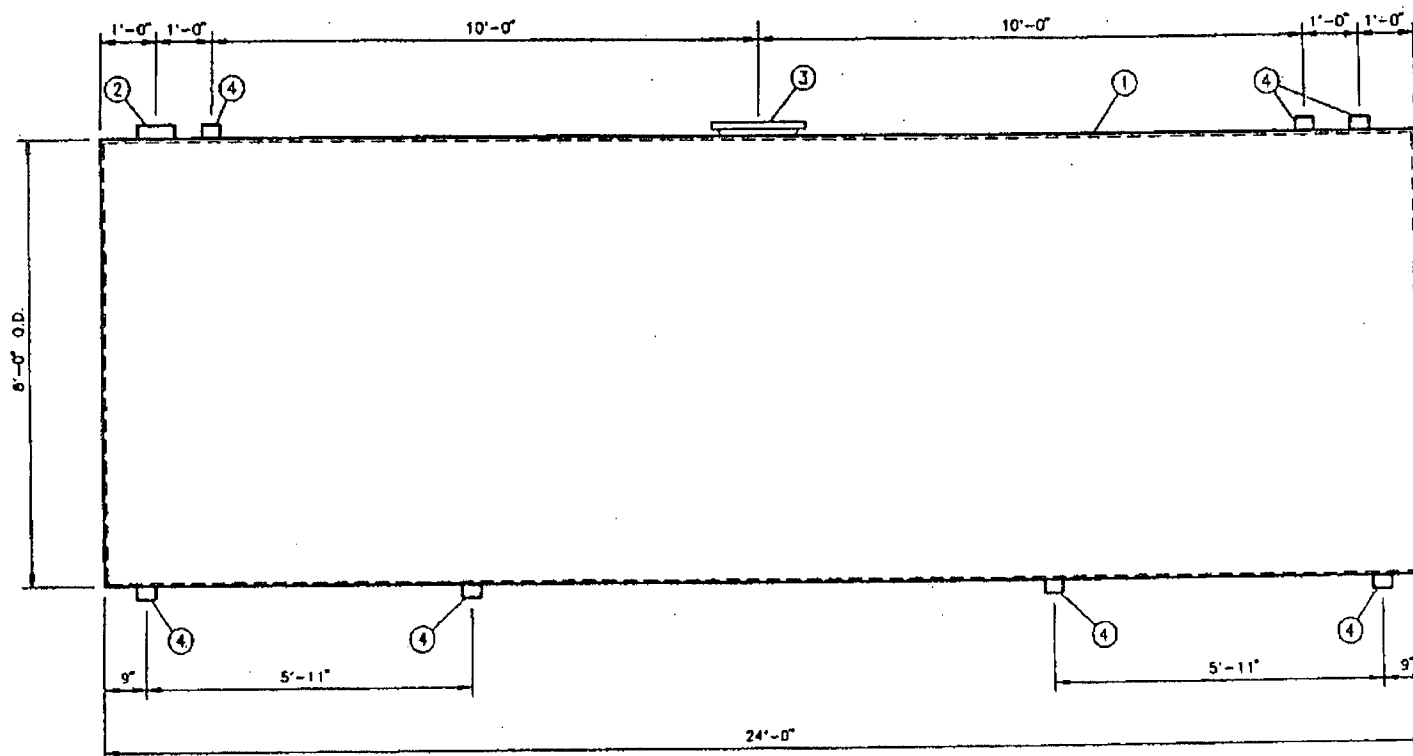


| Item | Qty. | Description |
|---|------|--|
| 5 | 2 | 2" Nipple |
| 4 | 4 | 4" Coupling |
| 3 | 1 | 18" 150# RF |
| 2 | 1 | 8" Thief Hatch |
| 1 | 1 | 3/16" Shell 6'-5" O.D., S.A. 38, 11'-7" Long |
| HYDROCARBON RECYCLERS, INC. | | |
| 2549 N. NEW YORK AVE. WICHITA, KANSAS 67219 | | |
| Scale: 1" = 1'-0" | | Drawn by: ProDent |
| Date: 1-22-77 | | |
| TANK: 2,659 GALLON MAXIMUM CAPACITY | | |
| V-15-A | | 50-56-V15A-001 |



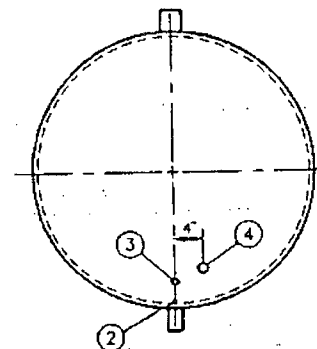
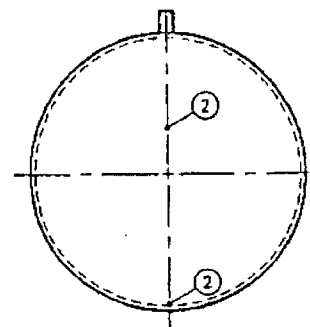
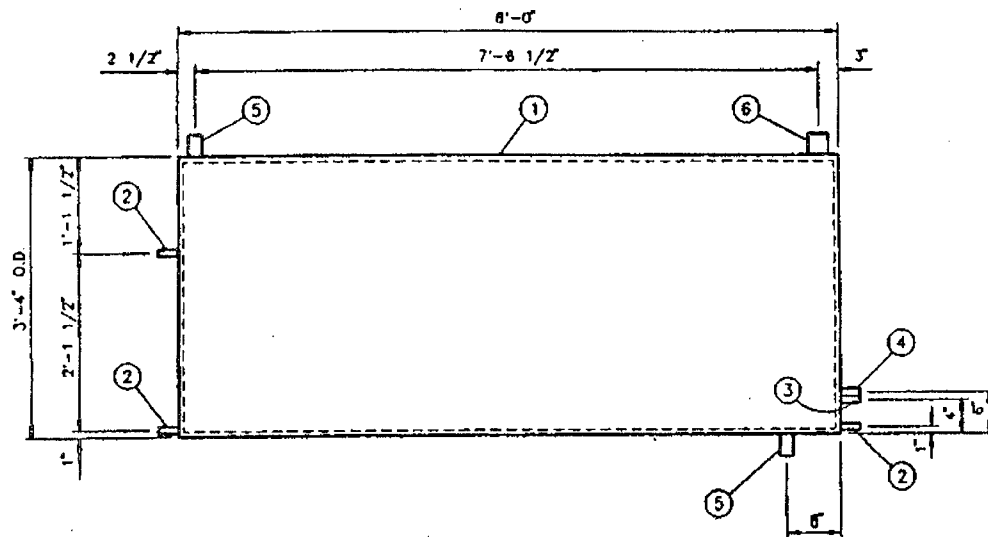
| | | |
|------|------|--|
| | | |
| 4 | 2 | 2" Nipple |
| 3 | 4 | 4" Coupling |
| 2 | 1 | 18" 150# RF |
| 1 | 1 | 3/16" Shell 6'-3" O.D., S.A. J6, 11'-7" Long |
| Item | Qty. | Description |

| | | |
|---|--|-------------------|
| HYDROCARBON RECYCLERS, INC. | | |
| 2349 N. NEW YORK AVE. WICHITA, KANSAS 67219 | | |
| Scale: 1" = 1'-0" | | Drawn by: ProPlan |
| Date: 1-22-82 | | |
| TANK: 2,859 GALLON MAXIMUM CAPACITY | | |
| V-15-B,C,D | | 50-56-V15B-001 |



U.L. Number 104276

| Item | Qty. | Description |
|---|------|---|
| 4 | 7 | 4" Coupling |
| 3 | 1 | 18" 150# RF |
| 2 | 1 | 8" Thief Hatch |
| 1 | 1 | 3/16" Shell 8'-0" O.D., S.A. 3B, 24' Long |
| HYDROCARBON RECYCLERS, INC. | | |
| 2549 N. NEW YORK AVE. WICHITA, KANSAS 67219 | | |
| Scale: 1 1/2" = 1'-0" | | Drawn by: Pro-Chart |
| Date: 1-23-83 | | |
| TANK: 9,028 GALLON MAXIMUM CAPACITY | | |
| V-16 | | 50-55-V16-001 |



| Item | Qty. | Description |
|------|------|---|
| 8 | 2 | 9" x 16" x 3/8" Plate |
| 8 | 4 | 3" x 3" Angle |
| 7 | 4 | 3" x 3" Angle, 6'-6" Long |
| 6 | 1 | 3" Nipple |
| 5 | 2 | 2" Coupling |
| 4 | 1 | 1 1/2" Coupling |
| 3 | 1 | 1" Coupling |
| 2 | 3 | 1/2" Coupling |
| 1 | 1 | 3/16" Shell 3'-4" O.D., S.A. 36, 8'-0" Long |

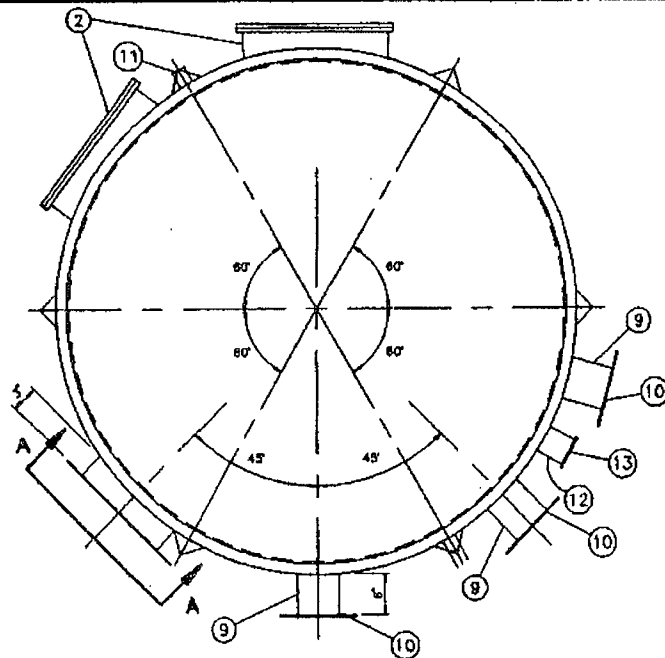
HYDROCARBON RECYCLERS, INC.
2549 N. NEW YORK AVE. WICHITA, KANSAS 67219

Scale: 1" = 1'-0"
Date: 1-22-82
Drawn by: Prodrill

TANK: 522 GALLON MAXIMUM CAPACITY

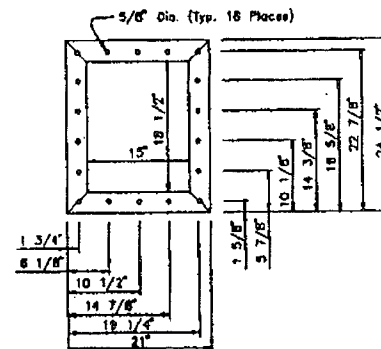
V-17

50-56-V17-001

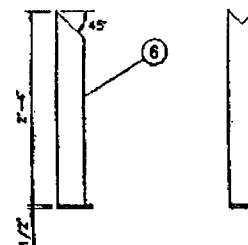
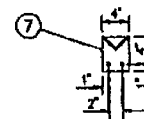
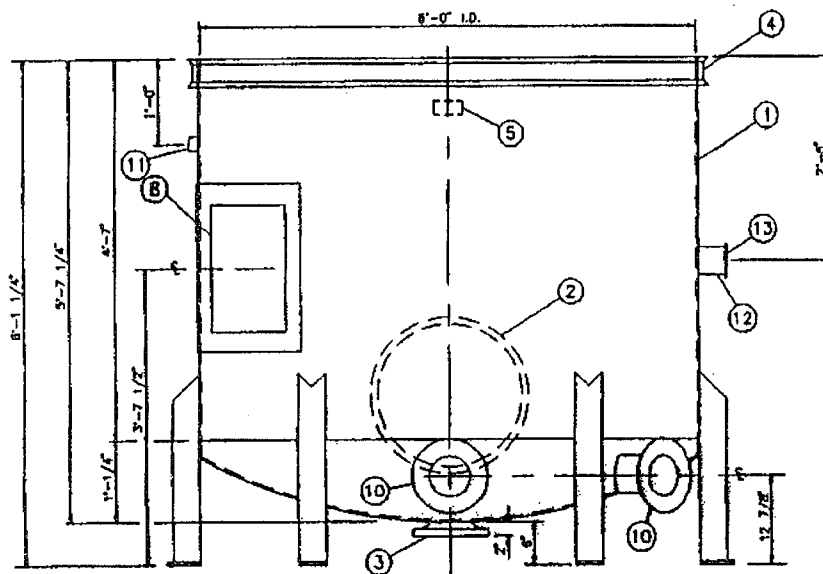


Specifications:

- 1.) Tank Head and Shell to be 5/16" C.S. L 5A-36.
- 2.) Tank to be Built per API 620 and replace API 620 Sec. 2 on Materials with API 650 Appendix A
- 3.) Primer w/1-coat Red Oxide Primer.



Section A-A



Leg Assembly

Typ. 8 Places

| 13 | 1 | 4" 150 Lb. RF |
|------|------|---|
| 12 | 1 | 6" Pipe |
| 11 | 1 | 2" 1/2 Cplg. |
| 10 | 3 | 6" 150 Lb. RF50 |
| 9 | 3 | 6" Schedule 40 Pipe |
| 8 | 1 | 5" x 5" x 1/4" Angle Section A-A |
| 7 | 6 | 4" x 4" x 1/2" R |
| 6 | 8 | 3" x 3" x 1/4" Angle 25' Long |
| 5 | 1 | API Name Plate |
| 4 | 1 | C4x5 4 Lbs. |
| 3 | 1 | 6" 150 Lb. RFWN |
| 2 | 2 | Chandler Part No. 1010 21" Manway |
| 1 | 1 | 5/16" Shell 8'-0" I.D. S.A. 36 4'-3" Long |
| Item | Qty. | Description |

HYDROCARBON RECYCLERS, INC.

2549 N. NEW YORK AVE. WICHITA, KANSAS 67210

Scale: 1" = 1'-0"
Date: 7-7-83

Designed by:
Drawn by: Procraft

TANK: 1,155 GALLON MAXIMUM CAPACITY

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Section E

Tank Systems

Appendix E-C - Documentation of Tank Ages

Appendix E-C

Documentation of Tank Ages

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Section E

Tank Systems

Appendix E-C - Documentation of Tank Ages

APPENDIX E-C

YEAR OF INSTALLATION OF HAZARDOUS WASTE TANKS

| <u>VESSEL</u> | <u>YEAR INSTALLED</u> | <u>VESSEL</u> | <u>YEAR INSTALLED</u> |
|---------------|-----------------------|---------------|-----------------------|
| V-1 | 1988 | V-12 | 1966 |
| V-2 | 1982 | V-13 | 1966 ¹ |
| V-3 | 1988 | V-14 | 1966 |
| V-4 | 1988 | V-15A | 1966 |
| V-5 | 1988 | V-15B | 1966 |
| V-6 | 1988 | V-15C | 1966 |
| V-7 | 1988 | V-15D | 1966 |
| V-8 | 1988 | V-16 | 1966 |
| V-9 | 1966 | V-17 | 1990 |
| V-10 | 1966 | | |
| V-11 | 1966 | V-26 | 1991 |

¹ Note: Tank V-13 was closed in place in September, 1996. It is anticipated that a replacement tank will be installed in the future.

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Appendix F-B, Example Corrective Action Record
Appendix F-C, Inspection Schedule for Containers
Appendix F-D, Safety and Security Inspection Form

Acronym Table

Clean Harbors Kansas, LLC (CHK)
Remedial Work Order (RWO)
Inspection Work Ticket (IWT)
Emergency Response Coordinator (ERC)
Container Management Unit (CMU)

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F-1 Introduction:

Clean Harbors Kansas, LLC (CHK) has developed this Inspection Plan in compliance with 40 CFR 264.15 and 270.14; changes to the inspection plan will be made in accordance with permit modification procedures found in 40 CFR 270.42. It is intended to provide a systematic method of identifying potential problems, malfunctions, or deterioration that may cause or lead to a release of hazardous constituents to the environment or a threat to human health. Inspections will be used to identify potential operational problems, and to identify required maintenance of in-service equipment and structures while the facility is operational or equipment is in service. The corrective action program will include a Corrective Action Management System (CMS), which could include either paper Remedial Work Orders (RWO) or electronic Inspection Work Tickets (IWT), to document and track the resolution of problems identified during inspections.

One or more inspectors will be designated to perform the inspections as scheduled. A record of the inspections and the schedule will be maintained at the facility. The results of the inspections will be recorded on an Inspection Log that will be maintained in the operating record. As an alternative to maintaining a paper log system as has been historically used by the facility, the inspection results may be maintained in an Electronic Inspection Management System developed by Clean Harbors. The Inspection Log, either in the paper or electronic format, will include the

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date, the time of the inspection, the name of the inspector, his/her initials, items examined, problems noted, and the identifying number of each RWO/IWT issued to address any problem noted. The nature and date of any repairs are recorded on the RWO/IWT when the repairs are completed. The RWO/IWT is then filed by identifying number in the operating record as a paper form or as a data record in the Electronic Inspection Management System.

Potential problems identified on the inspection log will be corrected or addressed as soon as possible or practicable. If repairs are required, they will be made as soon as they can be safely and practically performed. If the problem identified is a threat to human health or the environment, then actions to mitigate the situation will be undertaken immediately. All steps necessary to allow the repairs (e.g., minimizing the exposure of the workers to hazardous materials, hazardous waste, or hazardous situations) will be taken prior to beginning the repair work. The inspection logs and RWOs/IWTs will be maintained as part of the operating record for at least three years from the date of inspection. Examples of the inspection log in both paper and electronic format are provided in Appendix F-A, Example of Inspection Log. The electronic form has a different appearance than the paper form due to the manner in which the data is captured by the Inspection Management System database. Inspectors will conduct their inspections using the electronic system in the same manner as they would using the paper form and will review each area for the elements that are described in Attachments F-C and F-D.

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Examples of the paper RWO and the electronic IWT are provided in Appendix F-B, Example of Corrective Action Records.

The facility inspector will communicate the occurrence of problems to the Operations Manager (or designee) through the RWOs/IWTs. The timing of this notification will depend on the nature of the potential problem. A problem threatening human health or the environment would be reported immediately. If necessary, the inspector will notify the Emergency Response Coordinator (ERC) as required by Section H, Contingency/Emergency Plan.

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F-2 Inspection Requirements:

F-2a General Inspection Requirements: 40 CFR 264.15(a) and (b), 264.33, 270.14(b)(5)

Appendix F-C, General Inspection Schedule, will include inspection of the facility perimeter, safety and emergency equipment, security devices, operating and structural equipment, general requirements of miscellaneous units, communication systems, alarm systems, fire protection equipment, and decontamination equipment.

F-2b Specific Process Inspection Requirements: 40 CFR 264.15(b)(4), 270.14(b)(5)

Specific inspection schedules for container, tank systems, and miscellaneous units are provided in Appendix F-D, Inspection Schedule for Containers.

F-2b(1) Container/ Container Management Unit Inspection: 40 CFR 264.174

The Container Management Unit (CMU)s will be inspected for adequate aisle space, potential spills or accumulation of liquids into secondary containment systems and loading or unloading areas, and deterioration of secondary containment area structures.

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The containers will be visually inspected in accordance with Section C, Waste Characterization, for their condition (e.g., open, deteriorated, damaged, corroded, leaking, bulging such as may be caused by internal pressure build-up, etc.), and identification markings.

Refer to Section D, Use and Management of Containers, for a description of the CMUs. The inspection schedule for containers and container management units at the facility is presented in Appendix F-D, Inspection Schedule for Containers.

F-3 Inspection Schedule: 40 CFR 264.15, 270.14(b)(5)

The inspection schedules presented in Appendices F-C through F-D indicate the inspection frequency for each item on the schedule. Inspection frequencies may range from daily to annually, depending upon the item. The frequencies have been based on the rate of probable deterioration of equipment, equipment manufacturers' recommendations, and operating experience at other Clean Harbors facilities. For example, areas within the facility subject to spills, such as truck loading and unloading areas, will be inspected daily when in use.

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Appendix F-A - Sample Inspection Log**

APPENDIX F-A

EXAMPLE INSPECTION LOG

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Appendix F-B - Sample Remedial Work Order**

APPENDIX F-B

EXAMPLE CORRECTIVE ACTION RECORDS

Forms May be Modified

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Appendix F-C - General Facility Inspection schedule**

APPENDIX F-C

GENERAL FACILITY INSPECTION SCHEDULE

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Appendix F-C - General Facility Inspection schedule

| INSPECTION PARAMETER | INSPECTION PROCEDURE | INSPECTION FREQUENCY |
|--------------------------------------|---|---------------------------------|
| General Facility and Perimeter | Visually check fences and gates for breaks or damage. | Monthly |
| | Visually check warning signs for clear visibility. | Monthly |
| | Visually check for erosion under fences. | Monthly |
| | Visually check access and intra-facility roads for spills. | Daily |
| | Visually check for vegetation obscuring warning signs along the fence. | Monthly |
| Safety and Emergency Equipment | Inspect tags of fire extinguishers for expiration dates and adequate pressure. | Monthly |
| | Test telephones for proper operation. | Monthly |
| | Test alarms for proper operation. | Monthly |
| | Test paging and loudspeaker systems for proper operation. | Monthly |
| | Inspect self-contained breathing apparatus (SCBA) for air pressure with a pressure gauge. Inspect regulators to verify that air passage is unobstructed. Visually check masks and hoses for serviceability. | Monthly |

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 Appendix F-C - General Facility Inspection schedule

| INSPECTION PARAMETER | INSPECTION PROCEDURE | INSPECTION FREQUENCY |
|---------------------------------|---|---------------------------------|
| | Inspect first aid stations. | Monthly |
| | Inspect fire hydrants for adequate water supply, and leaks or evidence of corrosion. | Annually |
| | Visually inspect sprinkler systems and other fire suppression systems. | Monthly |
| | Inspect external condition of safety showers and operate to verify adequate water flow. | Monthly |
| | Inspect external condition of eye wash stations and operate to verify adequate water flow. | Monthly |
| | Inspect spill response and decontamination equipment for operable condition. Spill response equipment includes the following: | Monthly |
| | Overpack drums | |
| | Absorbents | |
| | Portable pumps | |
| | Hand tools | |
| | Brooms | |
| | Detergent | |
| | Absorbent towels | |
| | Inspect inventory of Facility PPE for adequate supplies and operable condition. PPE includes the following: | Monthly |

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| INSPECTION PARAMETER | INSPECTION PROCEDURE | INSPECTION FREQUENCY |
|---------------------------------|-----------------------------|---------------------------------|
| | Cartridge respirators | |
| | Supplied air respirators | |
| | Protective clothing | |
| | Specialized gloves | |
| | Specialized footwear | |
| | Hearing protection | |
| | Eye protection | |
| | Hard hats | |

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Appendix F-D - Container, CMU Inspection Schedule

APPENDIX F-D

INSPECTION SCHEDULE FOR CONTAINERS

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Appendix F-D - Container, CMU Inspection Schedule

This schedule applies to active Container Management Units (CMUs) at CHK, except as noted.

| INSPECTION PARAMETER | INSPECTION PROCEDURE | INSPECTION FREQUENCY |
|-----------------------------------|--|---------------------------------|
| Container Management System | Inspect containment system loading and unloading areas for evidence of spills or accumulated liquids. | Daily |
| | Inspect aisles in container storage areas for a minimum of two (2) feet of aisle space. | Daily |
| | Visually inspect containers for evidence of pressure build-up, structural damage, leaks, missing cap or bung, corrosion, or deterioration. | Weekly |
| | Visually inspect containers for legible markings or identification labels. | Weekly |
| | Inspect the container storage areas, concrete slab, and curbs for cracks, gaps, flaking, chips, gouges, and other signs of wear. | Daily |
| | Inspect sumps for presence of liquids. | Daily |
| | Inspect container management areas to ensure incompatible wastes are properly segregated. | Weekly |
| | Inspect equipment and conveyors for operability, condition. | Weekly |

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Appendix F-G - Air Emissions Inspection Schedule

| <u>INSPECTION PARAMETER</u> | <u>INSPECTION PROCEDURE</u> | <u>INSPECTION FREQUENCY</u> |
|--|--|--|
| Pumps and Ancillary Equipment | Monitor for volatile air emissions as required. | Monthly and Annually |
| | Visually monitor as required for evidence of leaks. | Daily when in use |

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Clean Harbors Kansas, LLC
ANNUAL INSPECTION LOG

FOR THE PERIOD OF : _____ TO _____, _____

DATE INSPECTED: _____, TIME: _____

| INSPECTION UNIT | ANNUAL INSPECTION | | |
|-------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Fire Hydrants | Check for adequate water supply, and leaks or evidence of corrosion. | A / U | |
| Pumps and ancillary equipment | Check for leaks in accordance with method 21 referenced in 264.1063. Record in Subpart AA and BB monitoring record book. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

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Appendix F-A, Example of Inspection Log

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Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____ , _____

TIME: _____

| INSPECTION UNIT | PERIMETER AND YARDS | | |
|---------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Facility Gates | Check: should be locked, and warning signs present and visible. | A / U | |
| Access Roads | Check for facility debris, deterioration, and spills. | A / U | |
| Perimeter and Yards | Check for contaminated pallets, hoses, equipment or debris, or evidence of spills. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____, _____, _____

TIME: _____

| INSPECTION UNIT | BUILDING D: | | |
|---------------------------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| | Sump: Check for accumulation of liquid, contaminants, or deterioration. | A / U | |
| Containment area: Inside Tank Room | Cracks or general deterioration of the concrete. | A / U | |
| | Floor coating integrity: Check for cracks, gaps, flaking, chips, gouges, or other signs of wear or leaking. | A / U | |
| | Sump: Check for accumulations of liquid, contaminants, or deterioration. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____ / _____

TIME: _____

| INSPECTION UNIT/ AREA: H BUILDING: Operations Shack | | | |
|---|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Log Books | Check to ensure that log entries are made daily and the logs are kept in a designated location. | A / U | |
| | Check on the following table to ensure that tank strappings are recorded daily for each tank. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____ / _____

TIME: _____

| INSPECTION UNIT | BUILDING C: | | |
|-------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Check for fire prevention: no smoking, use of non sparking tools, proper use of Hot Work Permits as needed. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| | Floors: check for accumulations of liquids or contaminants. | A / U | |

| INSPECTION UNIT | Drum Dock: | | |
|-------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| Waste Acceptance | Check trucks and vans in dock and in yard: incoming loads must be placed in a Container Management Unit within 72 hours of arrival. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____ / _____

TIME: _____

| INSPECTION UNIT | BUILDING B: | | |
|-------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| | Sump: Check for accumulations of liquids, contaminants, insecure gratings, or deterioration. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Clean Harbors Kansas, LLC
DAILY INSPECTION LOG

FOR THE DAY OF : _____ / _____

TIME: _____

| INSPECTION UNIT | BUILDING I: | | |
|-------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| | Floors: check for accumulations of liquids or contaminants. | A / U | |

| INSPECTION UNIT | BUILDING J: | | |
|-------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Container Storage | Two foot minimum aisle space between piles of drums. | A / U | |
| | Loading/unloading areas: check for evidence of spills or accumulated liquids. | A / U | |
| | Floors: check for accumulations of liquids or contaminants. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED REMEDIAL WORK ORDERS *****

Cleaen Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| INSPECTION UNIT | PERIMETER AND GENERAL FACILITY | | |
|-----------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Facility Gates | Operate and make sure the warning signs are present and visible. | A / U | |
| Fences | Check for breaks or damage. | A / U | |
| | Check for erosion under fences. | A / U | |
| Access Roads | Check for facility debris, deterioration, and spills. | A / U | |
| Perimeter and Yards | Note any evidence of stressed vegetation or vegetation obscuring signs. | A / U | |
| Loud Speakers | Check for operability and clarity. Receive confirmation of both. | A / U | |
| Telephone System, Emergency Alarm | Check for operability and verify contingency plan contact list is present. | A / U | |

| INSPECTION UNIT/ AREA: G BUILDING: Break Room and Showers | | | |
|---|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Emergency Equipment | Check SCBA for cleanliness, air, operability. | A / U | |
| | Check first aid kit for stock and accessibility. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Cleaen Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| INSPECTION UNIT | BUILDING D: | | |
|--------------------------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Telephone System, Emergency Alarm | Check for operability and verify contin- gency plan contact list is present. | A / U | |
| Spill Control Equip- ment | Check inventory and availability of ab- sorbent, shovel, broom, and drum. | A / U | |
| PPE Storage | Inspect inventory for adequate supplies and operable condition. | A / U | |
| Fire Extinguishers | Check seals and pressure. Assure that appropriate type is hanging by signs/ contingency plan. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Cleaen Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| INSPECTION UNIT | PROCESSING AREA: | | |
|-------------------------|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Spill Control Equipment | Check for inventory and availability of absorbent, shovel, broom, and drum. | A / U | |
| Emergency Equipment | Check for cleanliness, proper location of contingency plan equipment, and operability of eyewash and shower stations. | A / U | |
| Fire Extinguishers | Check for seals and pressure. Assure that correct type is hanging by signs/ contingency plan. | A / U | |
| Warning Signs | Check that No Smoking Signs are visible on all four sides of the Processing building. | A / U | |
| Fire Suppression System | Check for deterioration. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Cleaan Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| INSPECTION UNIT/ AREA: H BUILDING: Operations Shack | | | |
|---|---|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Emergency Equipment | Check for stock and accessibility of First Aid kit. | A / U | |
| Fire Extinguisher | Check for seals and pressure. Assure that correct type is hanging by signs/ contingency plan. | A / U | |
| Telephone System, Emergency Alarm | Check for operability and verify contingency plan contact list are present. | A / U | |

| INSPECTION UNIT BUILDING C: | | | |
|-----------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Spill Control Equipment | Check for inventory and availability of absorbent, shovel, broom, and drum. | A / U | |
| Fire Extinguishers | Check for seals and pressure. Assure that correct type is hanging by signs per contingency plan. | A / U | |
| Telephone System, Emergency Alarm | Check for operability and verify Contingency Plan Contact List is present. | A / U | |
| Fire Suppression System | Check pressure gauges: water approx. 100PSI, air approx. 40-45PSI. | A / U | |

| INSPECTION UNIT Drum Dock: | | | |
|-----------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Telephone System, Emergency Alarm | Check for operability and verify contingency plan contact list is present. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Cleaan Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| | | | |
|---|--|--------|--|
| INSPECTION UNIT | WEST YARD | | |
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Facility Gates | Check: should be locked, and warning signs present and visible. | A / U | |
| Access Roads | Check for facility debris, deterioration, and spills. | A / U | |
| Fences | Check for breaks or damage. | A / U | |
| | Check for erosion under fences. | A / U | |
| Perimeter and Yards | Note any evidence of stressed vegetation. | A / U | |
| INSPECTION UNIT | BUILDING B: | | |
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Spill Control Equipment | Check for inventory of absorbent, soda ash, shovel, broom, and poly drum. | A / U | |
| Telephone System, Emergency Alarm | Check for operability and verify contingency plan contact list is present. | A / U | |
| Fire Extinguishers | Check seal and pressure. Assure appropriate type is hanging by sign/ contingency plan. | A / U | |
| INSPECTION UNIT/ AREA: A BUILDING: Laboratory | | | |
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Emergency equipment | Check eyewash and shower stations for cleanliness, and accessibility. | A / U | |
| Fire Extinguishers | Check seal and pressure. Assure appropriate type is hanging by sign/ contingency plan. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Cleaeen Harbors Kansas, LLC
MONTHLY INSPECTION LOG

FOR THE MONTH OF : _____, _____, _____

DATE AND TIME: _____

| INSPECTION UNIT | WEST YARD | | |
|-----------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Telephone System, Emergency Alarm | Check for operability and verify contingency plan contact list is present. | A / U | |
| INSPECTION UNIT | BUILDING I | | |
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Gates & Doors | Operate and make sure the warning signs are present and visible. Gates and doors should be locked unless in use. | A / U | |
| Fire Extinguishers | Check seal and pressure. Assure appropriate type is hanging by sign/ contingency plan. | A / U | |
| Access Roads and Yards | Check for facility debris, deterioration, and spills. | A / U | |

| INSPECTION UNIT | BUILDING J | | |
|------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Gates & Doors | Operate and make sure the warning signs are present and visible. Gates and doors should be locked unless in use. | A / U | |
| Fire Extinguishers | Check seal and pressure. Assure appropriate type is hanging by sign/ contingency plan. | A / U | |
| Access Roads and Yards | Check for facility debris, deterioration, and spills. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

Clean Harbors Kansas, LLC
ANNUAL INSPECTION LOG

FOR THE PERIOD OF : _____ TO _____, _____

DATE INSPECTED: _____, TIME: _____

| INSPECTION UNIT | ANNUAL INSPECTION | | |
|-------------------------------|--|--------|--|
| INSPECTION ITEM | ELEMENT | STATUS | OBSERVATION/ REMEDIAL WORK ORDERS ISSUED |
| Fire Hydrants | Check for adequate water supply, and leaks or evidence of corrosion. | A / U | |
| Pumps and ancillary equipment | Check for leaks in accordance with method 21 referenced in 264.1063. Record in Subpart AA and BB monitoring record book. | A / U | |

INSPECTION COMPLETED BY: _____

***** DEFICIENCIES AND CORRECTIONS ARE DETAILED IN THE REFERENCED WORK ORDERS *****

**Clean Harbors Kansas, LLC
RCRA Permit Application
Section F
Inspection Plan**

Appendix F-B, Example of Corrective Action Record

**May 19, 2008
Revision No. 10**

Inspection Work Ticket

Work Ticket #:

[View History](#)

Area:

Reason Code:

Comment:

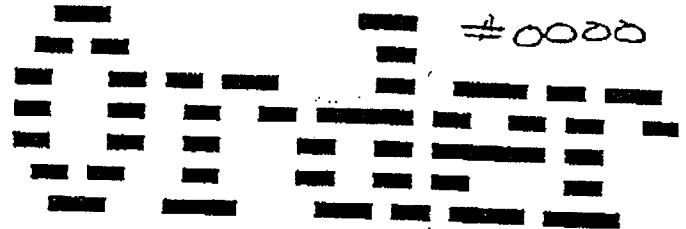
Status:

Status Date:

Assigned to:

Notes:

EXAMPLE



Date Found: _____
Location: _____

Issue: _____

Date to be Done: _____

Extended Until: _____

By: _____

Compliance Issue: ()

Not Compliance: ()

We Need To: _____

Assigned To: _____

Supervisor: _____

Comments: _____

Inspector: _____

How Corrected: _____

By Whom: _____

Date Corrected: _____

Accepted as Corrected By: _____

Date: _____

Comments: _____

**Clean Harbors Kansas, LLC
RCRA Permit Application
Section F
Inspection Plan**

Appendix F-C, Inspection Schedule for Containers

**May 19, 2008
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CONTAINER STORAGE AREA INSPECTION FORM

FormCode COCMPFRM03

| | | | | | |
|--|----------------------------------|-----------------------|-----------------------|--------------------|---------------------|
| Full Name: | | Date: | 5/7/2008 | | |
| Location: | Bldg xxxx | Military Time: | | | |
| Instructions: Note condition of inspection items. If item does not apply to an area, mark N/A. All unsatisfactory findings must be explained below. Include any repairs, changes or other remedial actions required or performed. | | | | | |
| INSPECTION ITEM | YES | NO | N/A | REASON FOR FAILURE | WORK TICKET STAT |
| Container Placement and Stacking | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Sealing of Containers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Labeling of Containers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Containers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Pallets | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Doors (indoor area) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Base / Foundation / Roof | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Berms / Racks | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Debris and Refuse | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Warning Signs | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |

| | | | | | |
|--|----------------------------------|-----------------------|-----------------------|--|--|
| Aisle Space | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Loading and Unloading Areas | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Sumps | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Alarm and Communication System | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Storage Capacity | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Bonding / Grounding | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Pumps | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| Inventory Age | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <div></div> | | | | | |
| On-Demand Work Ticket (please describe reason below) | | | | | |
| <div></div> | | | | | |
| Select Overall Assessment of Inspection Results | <div>Pass</div> | | | | |

Submit

Supervisor's Signature _____

**Clean Harbors Kansas, LLC
RCRA Permit Application
Section F
Inspection Plan**

Appendix F-D, Safety and Security Inspection Form

**May 19, 2008
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SAFETY & SECURITY INSPECTION FORM

FormCode **COCMPFRM01**

| | | | | | | |
|--|----------------------------------|-----------------------|-----------------------|--------------------|------------------|--|
| Full Name: | | Date: | 5/7/2008 | | | |
| Location: | Wichita | Military Time: | | | | |
| Instructions: Note condition of inspection items. If item does not apply to an area, mark N/A. All unsatisfactory findings must be explained below. Include any repairs, changes or other remedial actions required or performed. | | | | | | |
| INSPECTION ITEM | YES | NO | N/A | REASON FOR FAILURE | WORK TICKET STAT | |
| Perimeter Fences | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Gates | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Warning Signs | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Exit Signs | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Exits / Firelanes / Evacuation Routes Clear? | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Lighting System | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Emergency Lighting System | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Accessibility of Safety Equipment/Protective Gear (helmets, faceshields, goggles, boots, gloves, clothing, duct tape, ab. pads) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Adequate Supply of Safety Equipment/Protective Gear | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |
| Condition of Safety Equipment/Protective Gear | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | | |
| | | | | | | |

| | | | | | |
|--|----------------------------------|-----------------------|-----------------------|--|--|
| Breathing Apparatus Accessibility | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Breathing Apparatus Adequate Supply/Full Charge | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Breathing Apparatus Condition | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| First Aid Kits | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Blood Borne Pathogen Kits | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Emergency Eyewashes | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Emergency Showers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Internal/External Communications (Phones/Radios) | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Fire Extinguishers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Absorbent Supply | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Recovery Drum Supply | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Respirators and Cartridges | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Fire Suppression System (monitors, pull stations, alarms) Accessibility | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Fire Suppression System Operable? | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |

| | | | | | |
|--|----------------------------------|-----------------------|-----------------------|--|--|
| Water Lines / Hydrants | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Alarm Systems | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Fire Blankets | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Strainers on Fire Suppression System | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Surveillance System/Guard Service | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Supplied Air Delivery System and Reserve | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Wind Sock | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Decontamination Equipment | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Portable Sump Pumps | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Gasoline Pumps | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Loud Speakers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Chocked Wheels on Parked Vehicles | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Cylinders Secure | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Ventilation Operable | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |

| | | | | | |
|-------------------------------|----------------------------------|-----------------------|-----------------------|--|--|
| Fall Protection | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Electrical Boxes | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Emergency Contact Info Posted | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Hearing Protection Available | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Housekeeping | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Portable Compressor | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Lime Supply | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| QC Lab Hood | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Rolloff Parking Area | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Dumpster / Outside Containers | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Stormwater Collection System | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Rally Point | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Visitors Log | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |
| Contingency Plan | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| | | | | | |

| | | | | | |
|--|-----------------------------------|-----------------------|-----------------------|--|--|
| Wind Instrument | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | |
| <input type="text"/> | | | | | |
| On-Demand Work Ticket (please describe reason below) | | | | | |
| <input type="text"/> | | | | | |
| Select Overall Assessment of Inspection Results | <input type="text" value="Pass"/> | | | | |

Submit

Supervisor's Signature _____

Clean Harbors Kansas, LLC RCRA Permit Application Section G Procedures to Prevent Hazards

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Figure G.1, Facility Layout

List of Referenced Drawings

Drawings located in Section Y, Referenced Drawings

Drawing 50-01-01-002, Facility Layout

List of Acronyms

Clean Harbors Kansas, LLC (CHK)
Public Address (PA)
Hazardous Waste Management Unit (HWMU)
Container Management Unit (CMU)
Personal Protective Equipment (PPE)
Self-Contained Breathing Apparatus (SCBA)
National Fire Protection association (NFPA)

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Section G
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G-1 Introduction

Waste management processes at Clean Harbors Kansas, LLC (CHK) are designed with safety features for protection of human health, the environment, and the general public. This section is a description of the measures used to prevent hazards during waste management at the facility. The hazardous waste units at the facility include container management units, and loading and unloading facilities.

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G-2 Security: 40 CFR 264.14, 270.14(b)(4)

G-2a Waiver 40 CFR 264.14, 270.14(b)(4)

The CHK facility is not claiming the waiver of the security procedure and equipment requirements of 40 CFR 264.14.

G-2a(1) Injury to Intruder 40 CFR 264.14, 270.14(b)(4)

The CHK facility is equipped with numerous systems to minimize the possibility of intentional entry of the facility by intruders. These systems include conventional equipment such as fencing, locked gates, and warning signs but may also include electronic security systems. In order to prevent a possible intruder from coming in contact with the waste being managed at the facility, containers will be kept closed at all times except when physically adding, removing or sampling waste and will be stored within closed buildings. Containers of waste are typically closed with bung wrenches or chime ring bolt wrenches. These devices make it very difficult to open by hand, without special tools. Trailer trucks used to hold waste during the course of transportation that are parked at the facility will be kept locked while on facility grounds. These methods of securing the waste stored at the facility will minimize the possibility that an intruder will be injured through contact with the waste.

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G-2a(2) Violation Caused by Intruder 40 CFR 264.14, 270.14(b)(4)

As discussed in the sections above and below, the facility security devices and container closure devices make it difficult for an intruder to come in contact with the waste and therefore potentially causing a permit violation. Should the intruder use extraordinary measures to open a container or cause damage to the container, the secondary containment in which drums are stored would prevent any potentially released waste from escaping from the facility and cause a permit or regulatory violation.

G-2b Security Procedures and Equipment:

The CHK facility will be secured to prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility, to protect human health and the environment. (The active portion of the facility, hereinafter referred to in this section as "the facility," is as defined by 40 CFR 261.10.) This will be accomplished by provisions such as, fencing, gates, an electronically controlled security system, and warning signs. Presence of facility personnel during shift operations will minimize or prevent incidents of trespassing and vandalism. Fencing is not provided where buildings and building entrances provide a barrier to unauthorized entry. In addition,

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employees are instructed to question and direct unauthorized visitors to the office should they try to enter the facility. These security provisions are further discussed below.

- Fence: where required for security, the facility is surrounded by a six (6) foot high chain link fence with gates at various locations. Figure G.1, Facility Layout gives the location of fencing and gates. Entry into the facility will be controlled by the fencing, gates, and buildings. Gates and doors which allow access to the facility are to remain closed and secured against entry unless in use. Personnel and vehicle access will be controlled by an electronic system or by designated facility personnel.
- Vehicle Access: Vehicles must be authorized to enter the facility. Normal vehicle access is through the main entrance; this entrance is provided with electronic controls. However, when attended by facility personnel, other gates may be used with prior authorization. These secondary gates may also be used while evacuating the facility. In the event of a failure or scheduled shutdown of the electronic gate system, the main entrance gate will be operated manually. The operation of the secondary gates will not be affected by a power failure, since these gates will not be electronically controlled.
- Personnel Access: These procedures are designed to control unauthorized entry into the facility. Access into the facility will be controlled by the fencing, gates, buildings, and facility personnel. Non-employee personnel including contractors, consultants,

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governmental agency personnel and visitors will be required to sign in prior to being granted entry into the facility. Entry to the facility will be monitored by facility personnel.

- Warning signs: Warning signs will be posted on or adjacent to all gates. The signs, written in English, will state at a minimum, "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT." The lettering on warning signs will be at least two (2) inches high to be legible from a distance of twenty-five (25) feet. The lettering and the sign background will be contrasting colors. Warning signs will also be placed along the fence and, where appropriate, along building exterior walls so as to be seen from any approach to the facility.
- Signs are posted inside the facility to warn personnel about potential hazards. These signs may be required, for example, by OSHA regulations (e.g., NO SMOKING, EYE PROTECTION REQUIRED, HEARING PROTECTION REQUIRED, DANGER - HIGH VOLTAGE, etc.). The signs will be located as appropriate.

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G-3 Inspection Schedule: 40 CFR 264.15, 264.33, 264.174, 270.14(b)(5)

CHK has developed an Inspection Plan to provide a systematic method of identifying potential problems, malfunctions, or deterioration which may cause or lead to a release of hazardous constituents to the environment or a threat to human health. The facility inspection plan, including inspection schedules, is presented in Section F, Inspection Plan.

G-3a Types of Problems 40 CFR 270.14(b)(5), 264.15(b)(3)

The Inspection Schedule and inspection checklists provided in Section F of this permit application indicate the types of problems that the inspector will be looking for during the inspections conducted of each area used to manage hazardous waste.

G-3b Schedule of Remedial Actions 40 CFR 270.14(b)(5), 264.15(c)

Potential problems identified on the inspection log will be corrected or addressed as soon as possible or practicable. If repairs are required, they will be made as soon as they can be safely and practically performed. If the problem identified is a threat to human health or the environment, then actions to mitigate the situation will be undertaken immediately. All steps

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necessary to allow the repairs (e.g., minimizing the exposure of the workers to hazardous materials, hazardous waste, or hazardous situations) will be taken prior to beginning the repair work.

G-3c Inspection Log 40 CFR 270.14(b)(5), 264.15(d)

Copies of the paper and electronic Inspection Logs are provided in Appendix G-A. Copies of these documents are also maintained in Section F of this permit application.

G-4 Preparedness and Prevention Requirements: 40 CFR 270.14(b)(6)

CHK is operated and maintained to minimize the possibility of hazards such as fire, explosion, or unplanned release of hazardous waste, etc. to air, soil, or surface water which may threaten human health or the environment. The inspection schedule for facility safety and emergency equipment is provided in Section F, Inspection Plan.

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G-4a Equipment Requirements: 40 CFR 264.32

G-4a(1) Internal Communications: 40 CFR 264.32(a)

Communications inside CHK can be achieved through a telephone system and a Public Address (PA) system. Telephones will be located so that employees will have access to a phone. An employee will be able to call any other telephone in the facility, and can access the PA system for paging. The paging system will broadcast through a series of loudspeakers. Two way communication devices or paired work crews (i.e., the buddy system) will ensure that every employee has immediate access to communication in the event of an emergency. The internal communication system will be tested monthly, as indicated in the Inspection Plan, Section F. However, use of the internal communication system during the course of normal operations will more quickly identify developing problems.

An alarm system will alert personnel to major emergencies. Alarms will consist of a siren (activated at manual pull stations) or a broadcast over the paging system loudspeakers (activated by dialing the appropriate code at any telephone). Emergency telephone numbers and instructions are posted at or nearby every telephone in the active portion of the facility; emergency telephone numbers are also available in office areas.

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G-4a(2) External Communications: 40 CFR 264.32(b)

External facility communications will be available through the local telephone company. Local (Wichita) or long distance telephone connections are available. Arrangements for emergency response have been made with appropriate outside agencies; see the Contingency/Emergency Plan, Section H.

G-4a(3) Emergency Equipment: 40 CFR 264.32(c)

Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment will be available at the facility. Descriptions, locations, and a list of emergency equipment for the facility are provided in Section H, Contingency Plan. Emergency equipment is inspected for availability and readiness according to the schedule given in Section F, Inspection Plan.

G-4a(4) Water for Fire Control: 40 CFR 264.32(d)

The facility has a supply of water available for fire fighting. Water for fire protection is supplied by a water main that is part of the City of Wichita public water system. Hazardous Waste Management Units (HWMU) are provided with appropriate fire protection systems meeting the applicable requirements of the City Building Code and NFPA. These systems are

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designed to extinguish or confine the spread and area of exposure of a fire. The systems may consist of fire hydrants, overhead sprinkler systems, or other types of fire protection systems. A description of the fire protection equipment at Clean Harbors Kansas, LLC is included in Section H, Contingency Plan.

G-4a(5) Testing and Maintenance of Equipment 40 CFR 270.14 (b), 264.33(b)

The facility fire hydrants are tested annually for water flow and pressure. All hydrants are inspected to ensure they are available for emergency use and are not covered by dirt or other foreign material. All hoses and equipment are inspected for integrity and readiness.

Emergency eyewashes, showers, fire extinguishers, sumps, spill kits, alarms, and other emergency equipment are inspected regularly. The inspection criteria and frequencies are outlined in the Inspection Plan in Attachment 3. If problems are found, the corrective action procedures outlined in the Inspection Plan will be implemented.

All equipment will be maintained as necessary to assure its proper operation in time of emergency.

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G-4b Aisle Space Requirement: 40 CFR 264.35

Container Management Unit (CMU)s will have access aisles maintained to allow hand held and portable emergency response equipment to be moved. Adequate aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, or spill control equipment; and is ensured by regular inspections, per the inspection schedule in Section F, Inspection Plan. Container management areas will have a minimum aisle space of two (2) feet as described in Section D.

G-4c Documentation of Arrangements with Local Authorities 40 CFR 270.14(b), 264.37

In the event of an emergency which may require notification of outside authorities, the ERC or person designated by the ERC, shall call the appropriate emergency authorities; the KDHE will be notified within 24 hours or in as timely a manner as is possible of any events that result in implementation of this Emergency/Contingency Plan.

A telephone listing of these authorities is provided in Appendix G-B, Emergency Telephone List of Local Authorities. This telephone list will be posted at or nearby every telephone in the active portion of the facility; emergency telephone numbers are also available in office areas. The person initiating the call will provide as much of the following information as is available.

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Clean Harbors Kansas, LLC has made arrangements with Wichita Police/Fire Departments, Emergency Services and the Local Emergency Planning Commission to ensure that they are familiar with facility operations. Each agency has been provided a copy of the facility Contingency Plan and are provided with periodic updates as the Plan changes.

Attachment G-B contains the emergency contact phone numbers of local officials.

Attachment G-C contains the coordination agreement letters that CHK has provided to local officials and emergency services agencies.

G-5 Preventive Procedures, Structures, and Equipment: 40 CFR 270.14(b)(8)

Various structures have been constructed, safety features have been incorporated, and operating procedures have been developed, to minimize hazards to human health and the environment.

Procedures, equipment, and structures utilized to prevent hazards are described in the following sections.

- A description of the Container Management Units is provided in Section D, Use and Management of Containers.

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- A list of emergency equipment and a description of the emergency procedures are provided in the Contingency /Emergency Plan, Section H; a copy of this plan will be available at the facility at all times.
- Additional information regarding operating procedures are described in Section C, Waste Characterization, Section F, Inspection Plan, and Section I, Training Program.

Appropriate material handling equipment and devices will be employed in the waste management areas. Applicable safeguards will be observed during repairs performed near ignitable materials (e.g., no smoking, no sparks, no open flames, etc.). Special precautions will be taken to prevent accidental ignition of ignitable wastes or the uncontrolled mixing of incompatible wastes (Refer to G-6 of this section).

G-5a Loading and Unloading Operations: 40 CFR 270.14(b)(8)(i)

Facility operations personnel receive training on proper loading and unloading procedures. This training will include instruction on machinery operation, safety equipment, waste identification, and processing procedures. A description of the personnel training plan (e.g., job-specific training) is provided in Section I, Training Program.

Various structures and equipment are utilized during loading and unloading operations to prevent

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environmental and health hazards. Container Management procedures are detailed in Section D, Use and Management of Containers. Standard loading/unloading procedures are described below.

- Bulk Liquid Wastes: Prior to loading or unloading a bulk liquid container (e.g., a tanker truck) the operator will visually check valve position, that hoses are secured, and that any needed hose connection plugs and caps are in place. Following the loading or unloading of a bulk liquid container, the operator will visually check valve position, and that any needed hose connection plugs and caps are in place. Bulk metal containers holding ignitable liquid wastes will be grounded and bonded prior to loading or unloading.
- Containerized Wastes: Elevated docks are provided to facilitate loading and unloading of containerized wastes at the Drum Dock, and at Building J. Trucks are loaded or unloaded using an industrial truck or a drum dolly, or other appropriate container handling equipment. Containers are typically fifty-five (55) gallon drums, although larger and smaller containers may also be handled.

Manual handling of the containers will be minimized. Industrial trucks are capable of lifting and transporting one or more containers at a time. Drum grapplers (e.g., a semi-circular shaped arm attachment to the forks) or fork attachments for the forklift truck will be used for lifting and transporting individual containers. These drum grasping attachments are capable of securely

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holding a container during lifting and transporting without requiring additional straps or hooks. The operator is responsible for ensuring that the truck and the dock or ramp are properly aligned before any loading or unloading activities are initiated.

Drum dollies may be used to move individual containers (typically drums). The dollies have forks or a plate that can be inserted beneath the bottom of an individual container to support the container during lifting and transporting. The dollies either have a clip to secure the top of the container, or are shaped in an arc to cradle the container during lifting and transport.

These drum dollies have features capable of holding a container during lifting and transporting without requiring additional straps. Some manual handling of the containers may be necessary.

G-5b Run-off and Run-on: 40 CFR 270.14(b)(8)(ii)

Precipitation and spills in waste management areas will be contained by dedicated secondary containment structures. These structures will prevent run-off to the environment or other facility areas. Secondary containment systems may contain one or more sumps to allow collection and removal of any accumulated liquids. Accumulated liquids will be managed in accordance with Section C, Waste Characterization. Containment systems not protected from precipitation by a building have been designed to accommodate the intrusion of precipitation from a twenty-five (25) year, twenty-four (24) hour storm event. Drawings showing the design and dimensions of

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containment systems are provided in Sections D, Use and Management of Containers, of this permit application.

Precipitation falling outside of the containment areas is controlled to prevent run-on of storm water into a waste management unit. Storm water falling into the active areas of the site is managed through a storm water drainage system. Spills of hazardous waste will be promptly controlled and removed, when discovered, to prevent the spread of contaminants. Spill response procedures are provided in Section H, Contingency/Emergency Plan. The spilled material and any absorbent used will be placed into appropriate containers. The waste will be managed in accordance with Section C, Waste Characterization.

G-5c Water Supplies: 40 CFR 270.14(b)(8)(iii)

Operations at CHK will require water for potable and process usage. Water supplies include City of Wichita water as well as ground water available on site. City (potable) water will be used for personnel decontamination (e.g., eye-wash stations, safety showers, and sanitary needs).

Process water is used for waste treatment, equipment decontamination, fire fighting, etc. The process water will be supplied either from the City of Wichita distribution system or from ground water at the facility. Potable and process water are distributed, as needed, throughout the facility.

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Physical separation will be used to prevent contamination of the water in a delivery system by back-siphoning of contaminants.

G-5d Equipment and Power Failure: 40 CFR 270.14(b)(8)(iv)

Normally, the electrical requirements of CHK will be met with power purchased from the local power utility. There are no processes involving high pressures or reactions that, as a result of a power outage, might "run away" and cause fires, explosions, or other sudden releases of hazardous waste.

In the event of a power outage, facility personnel will proceed as follows.

- Cease operations
- Switch off process equipment
- Close appropriate valves
- Report to their supervisor(s) for further instructions

G-5e Personal Protective Equipment: 40 CFR 270.14(b)(8)(v)

Personal Protective Equipment (PPE) available at the facility will include the following.

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- Self-Contained Breathing Apparatus (SCBA): A portable device to supply breathing air will be available on-site.
- Cartridge respirator: Employees will be issued the appropriate mask and cartridges for the work area. Cartridges for the masks will be stocked at the facility.
- Supplied air: Buildings I and J will be equipped with a supplied air system to minimize the necessity for respirators in the container handling areas.
- Protective clothing: Employees performing specific tasks in HWMUs will be issued hard hats, protective coveralls, safety glasses, chemical resistant steel toe boots, specialized gloves, and hearing protection as appropriate. A supply of the appropriate protective clothing will be maintained at the facility.

Minimum PPE for all personnel within the active portion of the facility is a hard hat and eye protection. This minimum protection level will not apply to personnel within passenger vehicles, the administration building, control rooms, or any other office space within the facility in which the risk of a head or eye injury does not exceed normal office work risks. Personnel within specific waste management units will be provided with a hard hat, eye protection, and chemical resistant boots. Additional PPE will be provided as required for specific tasks.

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Employees will be trained in proper PPE decontamination during their introductory training.

G-5f Prevention of Releases to Atmosphere: 40 CFR 270.14(b)(8)(vi)

The facility is designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment as required by 40 CFR 264.31.

The facility Inspection Plan (Section F), Emergency/Contingency Plan (Section H), and Training Plan (Section I) have been developed to enable the facility to prevent releases including emissions and to respond to any releases that may occur.

Waste management practices designed to minimize potential releases to the atmosphere include procedures as specified in 40 CFR 264.173. Containers remain closed during storage, except when it is necessary to add or remove waste or sample the container. Containerized hazardous waste is managed in a manner that minimizes the potential for rupture of containers or damage to containers which could result in leakage. Ramps and automated transfer equipment facilitate safe movement of waste between management areas.

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Container unit management practices are designed to comply with the requirements of 40 CFR Subpart I – Use and Management of Containers. Materials are not intentionally placed in a container management unit if they could cause a release to the atmosphere as the result of a spill, leak or reaction with the contents of another container within close proximity. All spills and other releases from containers held within a container management unit will be removed and/or cleaned up at the earliest practicable time to minimize potential for release to atmosphere by evaporation.

G-6 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes:

G-6a Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste and Mixing of Incompatible Wastes: 40 CFR 264.17(a), 270.14(b)(9)

Precautions will be taken at the facility during storage, treatment, or handling to avoid the accidental ignition or reaction of waste and mixing of incompatible wastes. These precautions are intended to prevent generation of undesirable heat, pressure, fire, explosion, toxic gases, or fumes which could result in damage to the structural integrity of any portion of the facility or cause a threat to human health or the environment.

Ignitable waste will be protected from open ignition sources such as open flames, metal welding and cutting, hot surfaces, frictional heat, spontaneous ignition (e.g., heat producing chemical reactions), radiant heat, smoking, and sparks (static, electrical, or mechanical). Company policy

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prohibits the use of an open flame in areas where waste management occurs without issuance of a "Hot Work Permit." Smoking is allowed only in designated areas away from all waste management areas.

Activities generating flames or sparks, such as welding or cutting, in areas where waste management occurs, are permitted only after a "Hot Work Permit" has been issued. The permit is not granted until the area has been inspected, the work area tested for flammable vapors, and all ignitable wastes have been properly removed or protected. Flammable vapor concentrations in the air are determined through the use of a portable or stationary LEL (lower explosive limit) meter.

Grounding equipment is provided to dissipate any accumulation of static charges generated by the movement of liquids. The principles of static grounding and the hazards of flammable liquids are thoroughly explained to all operating personnel during their safety training program. Bulk metal containers (tank trailers and transport tanks) of ignitable liquid wastes will be grounded and bonded before and during transfer of material through pipes or hoses. Drums of ignitable liquid wastes will be grounded and bonded before and during transfer of material between containers. Signs prohibiting smoking will be conspicuously placed within and near the ignitable waste storage areas. Applicable safeguards (e.g., no smoking, no sparks) will be observed during repairs performed near ignitable materials.

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Buildings which enclose waste processing operations will be ventilated appropriately to avoid an accumulation of hazardous mists, vapors, dusts, or gases; or of flammable vapors or gases.

G-6b Management of Ignitable or Reactive Wastes in Containers: 40 CFR 264.176, 270.15(c)

Ignitable or reactive wastes in containers may be either solid, sludge, or liquid. Ignitable or reactive wastes in containers will be managed at CHK in a manner that minimizes the possibility of a fire or reaction.

Containers holding ignitable or reactive waste are kept closed at all times except when adding or removing waste or during sampling. Keeping the containers closed in this manner prevents the escape of potentially ignitable fumes that could find a remote ignition source. When it is necessary to conduct a transfer operation, the source and destination container, as well as the transfer device, will be properly grounded to prevent the generation of static electric charge.

Knowledge of the identity and characteristics of potentially ignitable and reactive wastes is key to preventing fire or unanticipated reactions. The information collected on the Waste Material Profile, Attachment G-D, will be used to determine if a particular waste stream is reactive so that appropriate storage and handling decisions can be made. Ignitable or reactive wastes are protected from spontaneous ignition caused by heat-producing chemical reactions by segregating

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incompatible wastes within the Container Management Building. Segregated secondary containment will prevent mixing of incompatible wastes.

The buildings have been designed to comply with the City Building Code and the appropriate codes of the National Fire Protection Association (NFPA). Interior and exterior walls of the Container Management Building meet the requirements of the applicable Building Code and NFPA codes. Equipment and personnel access doors meet the applicable codes. All containers in the Container Management Building that hold ignitable or reactive wastes are maintained a minimum of 50 feet from the facility property line.

G-6c Management of Incompatible Wastes in Containers: 40 CFR 264.177, 270.15(d)

Clean Harbors Kansas, LLC employs a number of protective measures to prevent the inadvertent mixing or commingling of incompatible wastes in containers. Incompatibility between wastes or a waste and a container will be determined in accordance with Section C, Waste

Characterization. No containerized wastes will be mixed with other containerized wastes until it is determined that the wastes are compatible. The compatibility testing is outlined in the Waste Analysis Plan.

Containers of waste received within one truck trailer will be unloaded and managed as described in Section C, Waste Characterization. If, during incoming load analysis, incompatible wastes in

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a common CMU are identified, the containers holding the incompatible waste will be removed and placed in an appropriate area or provided with a portable containment system. Section D, Use and Management of Containers provides a description of the container storage and processing procedures. Containers of incompatible materials will not be placed in the same containment area, unless one of the incompatible materials is placed on an isolation pallet or is otherwise isolated from the other material. These procedures will minimize the possibility of mixing of the incompatible materials should leaks develop in the containers holding the materials.

Wastes found to be incompatible under the procedures in Section C will not be placed in the same container. Wastes will only be added to containers that are shown to be compatible with the materials of construction of the container.

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APPENDIX G-A

SAMPLE INSPECTION LOG SHEETS

Form May be Modified

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Appendix G-B

Emergency Telephone Listing of Local Authorities

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Emergency Telephone Listing of Local Authorities

**Clean Harbors Kansas, LLC
2549 North New York Avenue
Wichita, Kansas, 67219**

Office Telephone No.: 316-269-7400

| Agency | Office Telephone | Emergency Telephone |
|---------------------------------|-------------------------|----------------------------|
| Sedgwick Co. EMS | 316/383-7994 | 911 |
| St. Francis Emergency Center | 316/268-5052 | 316/268-5052 |
| Wichita Fire Dept. | 316/268-4451 | 911 |
| WFD HazMat Team | 316/838-8655 | 911 |
| Wichita Police Dept. | 316/268-4239 | 911 |
| KDHE | 785/296-1079 | 785/296-0614 |
| EPA Region VII | 913/281-0991 | 913/281-0991 |
| National Response Center (NRC) | 800/424-8802 | 800/424-8802 |
| Derby Refinery After 5:00 PM | 316/262-5703 | ██████████ |
| Union Pacific | 316/268-9433 | ██████████ |

Ex. 6 PII

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**Appendix G-C
Coordination Agreement Letters**

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2549 North New York Street
Wichita, KS 67219

June 6, 2007

Sedgwick County Emergency Medical Services
P. O. Box 607
Wichita, Kansas 67201-0607

Certified Mail Receipt No.
7000 0520 0021 6578 8517

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

If, after review of the information presented on the entire Contingency Plan, you believe information in the Plan needs to be changed, added, or deleted, please feel free to contact Mr. John Martin at 316-269-7400 so that we can improve this document. No response from your agency signifies that the Contingency Plan is acceptable at this time.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart", is written over a horizontal line.

Lon Stewart
Regulatory Compliance Manager

enclosure

Clean Harbors Kansas, LLC
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2549 North New York Street
Wichita, KS 67219

June 6, 2007

Via Christi Emergency Services
929 N. St. Francis Street
Wichita, Kansas 67214

Certified Mail Receipt No.
7000 0520 0021 6578 8531

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart", with a long horizontal flourish extending to the right.

Lon Stewart
Regulatory Compliance Manager

enclosure

Clean Harbors Kansas, LLC
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2549 North New York Street
Wichita, KS 67219

June 6, 2007

Sedgwick County Local Emergency Planning Committee
525 N. Main Street, Room B-10
Wichita, Kansas 67202

Certified Mail Receipt No.
7000 0520 0021 6578 8524

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

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A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

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Respectfully submitted,

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Lon Stewart
Regulatory Compliance Manager

enclosure

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2549 North New York Street
Wichita, KS 67219

June 6, 2007

City of Wichita Fire Department
455 N. Main
Wichita, Kansas 67204
Attn: Hazardous Materials Response Team

Certified Mail Receipt No.
7000 0520 0021 6578 8548

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart", is written over a horizontal line.

Lon Stewart
Regulatory Compliance Manager

enclosure

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Section G
Procedures to Prevent Hazards



2549 North New York Street
Wichita, KS 67219

June 6, 2007

City of Wichita Police Department
455 N. Main
Wichita, Kansas 67201
Attn: Chief of Police

Certified Mail Receipt No.
7000 0520 0021 6578 8555

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

If, after review of the information presented or the entire Contingency Plan, you believe information in the Plan needs to be changed, added, or deleted, please feel free to contact Mr. John Martin at 316-269-7400 so that we can improve this document. No response from your agency signifies that the Contingency Plan is acceptable at this time.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart".

Lon Stewart
Regulatory Compliance Manager

enclosure

"People and Technology Creating a Better Environment"

May 19, 2008
Revision No. 10

**Clean Harbors Kansas, LLC
RCRA Permit Application
Section G
Procedures to Prevent Hazards**

Appendix G-D

Sample Waste Material Profile

**May 19, 2008
Revision No. 10**



WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. _____

A. GENERAL INFORMATION

GENERATOR EPA-ID: _____

GENERATOR PROFILE No. _____

GENERATOR CODE (Assigned by Clean Harbors) _____

GENERATOR NAME: _____

ADDRESS _____

CITY _____

STATE
PHONE: _____

ZIP/POSTAL CODE _____

CUSTOMER CODE (Assigned by Clean Harbors) _____

CUSTOMER NAME: _____

ADDRESS _____

CITY _____

STATE/PROVINCE _____

ZIP/POSTAL CODE _____

B. WASTE DESCRIPTION

WASTE DESCRIPTION: _____

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste): _____

C. PHYSICAL PROPERTIES (at 25C or 77F)

| PHYSICAL STATE | NUMBER OF PHASES/LAYERS | | | VISCOSITY (If liquid present) | | COLOR |
|---------------------------|-------------------------|---------------------------------|---|---|------------------------------|----------------------|
| SOLID WITHOUT FREE LIQUID | 1 | 2 | 3 | TOP | 1 - 100 (e.g. WATER) | |
| POWDER | | | | MIDDLE | 101 - 500 (e.g. MOTOR OIL) | |
| MONOLITHIC SOLID | % BY VOLUME (Approx.) | | | BOTTOM | 501 - 10,000 (e.g. MOLASSES) | |
| LIQUID WITH NO SOLIDS | | | | | > 10,000 | |
| LIQUID/SOLID MIXTURE | | | | | | |
| % FREE LIQUID | ODOR | | | BOILING POINT °F (°C) | MELTING POINT °F (°C) | TOTAL ORGANIC CARBON |
| % SETTLED SOLID | NONE | | | <= 95 (<=35) | < 140 (<60) | <= 1% |
| % TOTAL SUSPENDED SOLID | MILD | | | 95 - 100 (35-38) | 140-200 (60-93) | 1-9% |
| SLUDGE | STRONG | | | 101 - 129 (38-54) | > 200 (>93) | >= 10% |
| GAS/AEROSOL | Describe: | | | >= 130 (>54) | | |
| FLASH POINT °F (°C) | pH | SPECIFIC GRAVITY | | ASH | BTU/LB (MJ/kg) | |
| < 73 (<23) | <= 2 | < 0.8 (e.g. Gasoline) | | < 0.1 | < 2,000 (<4.6) | |
| 73 - 100 (23-38) | 2.1 - 6.9 | 0.8-1.0 (e.g. Ethanol) | | 0.1 - 1.0 | 2,000-5,000 (4.6-11.6) | |
| 101 - 140 (38-60) | 7 (Neutral) | 1.0 (e.g. Water) | | 1.1 - 5.0 | 5,000-10,000 (11.6-23.2) | |
| 141 - 200 (60-93) | 7.1 - 12.4 | 1.0-1.2 (e.g. Antifreeze) | | 5.1 - 20.0 | > 10,000 (>23.2) | |
| > 200 (>93) | >= 12.5 | > 1.2 (e.g. Methylene Chloride) | | Actual: | Actual: | |
| Actual: | Actual: | | | VAPOR PRESSURE (for liquids only) mm Hg | | |

D. COMPOSITION (List the complete composition of the waste, include any inert components and /or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

| CHEMICAL | MIN | MAX | UOM | CHEMICAL | MIN | MAX | UOM |
|----------|-----|-----|-----|----------|-----|-----|-----|
|----------|-----|-----|-----|----------|-----|-----|-----|

ANY METAL OBJECTs PRESENT?

YES

NO

If yes include dimension:

E. CONSTITUENTS -- Are these values based on testing or knowledge?
☐ Knowledge ☐ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. If based on knowledge, basis of knowledge must be provided below.

| RCRA | REGULATED METALS | REGULATORY LEVEL (mg/l) | TCLP mg/l | TOTAL ppm | OTHER METALS | MIN | MAX | UOM |
|------|------------------|-------------------------|-----------|-----------|--------------|-----|-----|-----|
| D004 | ARSENIC | 5.0 | | | ALUMINUM | | | |
| D005 | BARIUM | 100.0 | | | ANTIMONY | | | |
| D006 | CADMIUM | 1.0 | | | BERYLLIUM | | | |
| D007 | CHROMIUM | 5.0 | | | CALCIUM | | | |
| D008 | LEAD | 5.0 | | | COPPER | | | |
| D009 | MERCURY | 0.2 | | | MAGNESIUM | | | |
| D010 | SELENIUM | 1.0 | | | MOLYBDENUM | | | |
| D011 | SILVER | 5.0 | | | NICKEL | | | |
| | | | | | POTASSIUM | | | |
| | | | | | SILICON | | | |
| | | | | | SODIUM | | | |
| | | | | | THALLIUM | | | |
| | | | | | TIN | | | |
| | | | | | VANADIUM | | | |
| | | | | | ZINC | | | |

| RCRA | VOLATILE COMPOUNDS | REGULATORY LEVEL (mg/l) | TCLP mg/l | TOTAL ppm | NON-METALS | MIN | MAX | UOM |
|------|----------------------|-------------------------|-----------|-----------|------------|-----|-----|-----|
| D018 | BENZENE | 0.5 | | | BROMINE | | | |
| D019 | CARBON TETRACHLORIDE | 0.5 | | | CHLORINE | | | |
| D021 | CHLOROBENZENE | 100.0 | | | FLUORINE | | | |
| D022 | CHLOROFORM | 6.0 | | | IODINE | | | |
| D028 | 1,2-DICHLOROETHANE | 0.5 | | | SULFUR | | | |
| D029 | 1,1-DICHLOROETHYLENE | 0.7 | | | | | | |
| D035 | METHYL ETHYL KETONE | 200.0 | | | | | | |
| D039 | TETRACHLOROETHYLENE | 0.7 | | | | | | |
| D040 | TRICHLOROETHYLENE | 0.5 | | | | | | |
| D043 | VINYL CHLORIDE | 0.2 | | | | | | |

| RCRA | SEMI-VOLATILE COMPOUND | REGULATORY LEVEL (mg/l) | TCLP mg/l | TOTAL ppm | OTHER NON-METALS | MIN | MAX | UOM |
|------|------------------------|-------------------------|-----------|-----------|------------------|-----|-----|-----|
| D023 | o-CRESOL | 200.0 | | | AMMONIA | | | |
| D024 | m-CRESOL | 200.0 | | | REACTIVE SULFIDE | | | |
| D025 | p-CRESOL | 200.0 | | | CYANIDE-TOTAL | | | |
| D026 | CRESOL (TOTAL) | 200.0 | | | CYANIDE AMENABLE | | | |
| D027 | 1,4-DICHLOROBENZENE | 7.5 | | | CYANIDE REACTIVE | | | |
| D030 | 2,4-DINITROTOLUENE | 0.13 | | | | | | |
| D032 | HEXACHLOROBENZENE | 0.13 | | | | | | |
| D033 | HEXACHLOROBUTADIENE | 0.5 | | | | | | |
| D034 | HEXACHLOROETHANE | 3.0 | | | | | | |
| D036 | NITROBENZENE | 2.0 | | | | | | |
| D037 | PENTACHLOROPHENOL | 100.0 | | | | | | |
| D038 | PYRIDINE | 5.0 | | | | | | |
| D041 | 2,4,5-TRICHLOROPHENOL | 400.0 | | | | | | |
| D042 | 2,4,6-TRICHLOROPHENOL | 2.0 | | | | | | |

| RCRA | PESTICIDES AND HERBICIDES | REGULATORY LEVEL (mg/l) | TCLP mg/l | TOTAL ppm | OTHER | HOCs | PCBs |
|------|------------------------------|-------------------------|-----------|-----------|-------|-------------|-----------|
| D012 | ENDRIN | 0.02 | | | | NONE | NONE |
| D013 | LINDANE | 0.4 | | | | < 1000 PPM | <50 PPM |
| D014 | METHOXYCHLOR | 10.0 | | | | >= 1000 PPM | >= 50 PPM |
| D015 | TOXAPHENE | 0.5 | | | | | |
| D016 | 2,4-D | 10.0 | | | | | |
| D017 | 2,4,5-TP (SILVEX) | 1.0 | | | | | |
| D020 | CHLORDANE | 0.03 | | | | | |
| D031 | HEPTACHLOR (AND ITS EPOXIDE) | 0.008 | | | | | |

| OTHER | HOCs | PCBs |
|-------|-------------|---|
| | NONE | NONE |
| | < 1000 PPM | <50 PPM |
| | >= 1000 PPM | >= 50 PPM |
| | | IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761? |
| | | YES NO |

ADDITIONAL HAZARD

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES NO (If yes, explain)

 ASBESTOS
 DEA REGULATED SUBSTANCES
 DIOXIN
 EXPLOSIVE
 HERBICIDE
 FUMING / SMOKING WASTE
 NONE OF THE ABOVE

 INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT
 OXIDIZER
 OSHA REGULATED CARCINOGENS
 PESTICIDE
 POLYMERIZABLE
 RADIOACTIVE

 REDUCING AGENT
 SHOCK SENSITIVE
 SPONTANEOUSLY IGNITES WITH AIR
 THERMALLY SENSITIVE
 WATER REACTIVE

F. REGULATORY STATUS

| | | | |
|-----|----|---|--------|
| YES | NO | USEPA HAZARDOUS WASTE? | |
| YES | NO | DO ANY STATE WASTE CODES APPLY? | |
| YES | NO | IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268? | |
| | | LDR CATEGORY: | |
| | | VARIANCE INFO: | |
| YES | NO | IS THIS A UNIVERSAL WASTE? | |
| YES | NO | IS THIS A WASTEWATER PER 40 CFR PART 268.2? | |
| YES | NO | IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D0011, D012-D017 NON-WASTEWATERS, OR D018- D043 APPLY, ARE ANY UNDERLYING HAZARDOUS (UHCs) PRESENT ABOVE UNIVERSAL TREATMENT STANDARDS (UTS)? | |
| YES | NO | DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE? | |
| YES | NO | IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS? | |
| | | IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 401. | |
| YES | NO | IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? | |
| | | IF YES, IS THE GENERATOR'S TOTAL ANNUAL BENZENE >= 10 Megagrams? | YES NO |
| YES | NO | DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM? | |
| YES | NO | DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)? | |
| YES | NO | DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN 77 KPa (11.2PSIA)? | |
| YES | NO | IS THIS CERCLA REGULATED (SUPERFUND) WASTE ? | |
| YES | NO | IS THIS WASTE REGULATED UNDER THE OZONE DEPLETING SUBSTANCE ACT FOR ONTARIO? | |

G. D.O.T INFORMATION: (Include proper shipping name, hazard class and ID number).

US D.O.T. DESCRIPTION:

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY: ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER

IF BULK LIQUID OR BULK SOLID PLEASE INDICATE THE EXPECTED NUMBER OF LOADS PER SHIPPING FREQUENCY:

| CONTAINERIZED | BULK LIQUID | BULK SOLID |
|---------------------|-------------------------------------|------------------------|
| CONTAINERS/SHIPMENT | GALLONS/SHIPMENT: | SHIPMENT UOM: |
| STORAGE CAPACITY: | FROM TANKS: TANK SIZE | TON |
| CONTAINER TYPE: | FROM DRUMS | PER SHIPMENT: |
| CUBIC YARD BOX | VEHICLE TYPE: | MIN |
| PALLET | VAC TRUCK | STORAGE CAPACITY |
| TOTE TANK | TANK TRUCK | TON/YD |
| OTHER: | RAILROAD TANK CAR | VEHICLE TYPE: |
| DRUM SIZE: | CHECK COMPATIBLE STORAGE MATERIALS. | DUMP TRAILER |
| CONTAINER MATERIAL: | STEEL | ROLL OFF BOX |
| STEEL | STAINLESS STEEL | INTERMODAL ROLLOFF BOX |
| FIBER | RUBBER LINED | CUSCO/FACTOR |
| PLASTIC | DERAKANE | OTHER |
| OTHER | OTHER | |

I. SPECIAL REQUEST

SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS:

SPECIAL WASTE HANDLING REQUIREMENTS:

OTHER COMMENTS OR REQUESTS:

J. BIENNIAL / ANNUAL REPORTING INFORMATION

SIC CODE

SOURCE CODE

FORM CODE

K. SAMPLE STATUS

REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED.

YES

SAMPLED BY

DATE SAMPLED

WHERE SENT

NO

GENERATORS CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE

NAME (PRINT)

TITLE

DATE

NOTIFICATION & CERTIFICATION: RESTRICTED WASTE MEETING TREATMENT

STANDARDS

Generator Name _____ Manifest No. _____

Pursuant to 40 CFR §268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268 Land Disposal Restrictions (LDR).

Basis for certification: Describe the knowledge upon which the certification is made and/or attach the most recent analytical data: ☐ Analytical data attached

EPA Waste Code Treatment Standards

A. GENERAL WASTE NOTIFICATION

EPA Waste Code Descriptions

| Form Line No. | Profile No. | EPA Waste Codes & LDR Subcategories (if any) List codes or use Attachment 1 | NWW | WW | Waste Constituent Notification Check the "None" box or List Legend Constituent # or use Attachment 2 |
|---------------|-------------|--|--------------------------|--------------------------|--|
| 1 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 2 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |

B. GENERATOR WASTE CERTIFICATION

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."
- ☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

C. WASTE TREATMENT TECHNOLOGY & PROCESS CERTIFICATION

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR §268.40 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."
- ☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

D. CONTAMINATED SOIL TREATMENT TECHNOLOGY & PROCESS CERTIFICATION

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that I have personally examined & am familiar with the treatment technology & operation of the treatment process used to support this certification & believe that it has been maintained & operated properly so as to comply with treatment standards specified in 40 CFR §268.49 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment."

E. CONCENTRATION-BASED CERTIFICATION FOR INCINERATION/FUEL SUBSTITUTION RESIDUES

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that I have personally examined & am familiar with the treatment technology & operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion units as specified in 40 CFR §268.42, Table 1. I have been unable to detect the nonwastewater organic constituents, despite having used best good faith efforts to analyze for such constituents. I am aware there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment." ☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

F. WASTE TREATED TO REMOVE CHARACTERISTICS (but not UHCs)

- ☐ This certification applies to the waste identified above on Form Line No. _____. Note: I have identified the underlying hazardous constituents that require further treatment in Section A - Waste Constituent Notification of this form or in Attachment 2. "I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR §268.40 or §268.49 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment."

G. WASTE TREATED TO REMOVE CHARACTERISTICS & UHCs

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR §268.40 to remove the hazardous characteristic, & that underlying hazardous constituents, as defined in §268.2(i), have been treated on-site to meet the §268.48 Universal Treatment Standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment."

H. DEBRIS TREATED TO MEET ALTERNATIVE STANDARDS

- ☐ This certification applies to the waste identified above on Form Line No. _____. "I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR §268.45. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment."

Generator's Authorized Signature _____

Name & Title (Printed or Typed) _____

Date _____

LDR NOTIFICATION FORM

Generator Name _____

Manifest No. _____

Pursuant to 40 CFR §268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268 Land Disposal Restrictions (LDR).

EPA Waste Code Treatment Standards

A. GENERAL WASTE NOTIFICATION

EPA Waste Code Descriptions

| Form Line No. | Profile No. | EPA Waste Codes & LDR Subcategories (if any) <i>List codes or use Attachment 1</i> | NWW | WW | Waste Constituent Notification <i>Check the "None" box or List Legend Constituent # or use Attachment 2</i> |
|---------------|-------------|---|-------------------------------------|--------------------------|--|
| 1 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 2 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 3 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 4 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 5 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |
| 6 | | <input type="checkbox"/> Check if Attachment 1 has been used | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> None <input type="checkbox"/> Check if Attachment 2 has been used |

B. HAZARDOUS DEBRIS NOTIFICATION

- ☐ This hazardous debris, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.45.
- The waste contains the following contaminants subject to treatment (check all that apply):
- ☐ Toxicity characteristic debris ☐ Debris contaminated with listed waste ☐ Cyanide reactive debris

C. CONTAMINATED SOIL NOTIFICATION & CERTIFICATION

- ☐ This contaminated soil, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.49(c).
- Complete the following: "I certify under penalty of law that I personally have examined this contaminated soil & it [☐ does / ☐ does not] exhibit a characteristic of hazardous waste & [☐ is subject to / ☐ complies with] soil treatment standards as provided by §268.49(c) or the universal treatment standards". Note: Constituents subject to treatment are any constituents listed in 40 CFR §268.48 Universal Treatment Standards that are reasonably expected to be present in any given volume of contaminated soil, except fluoride, selenium, sulfides, vanadium & zinc, & are present at concentrations greater than ten times the universal treatment standard.

D. LAB PACK (INCINERATION) NOTIFICATION & CERTIFICATION

- ☐ This lab pack, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.42(c).
- "I certify under penalty of law that I personally have examined & am familiar with the waste & that the lab pack contains only wastes that have not been excluded under Appendix IV to 40 CFR Part 268 & that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR §268.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment".

E. EXTENSIONS & VARIANCES

- ☐ This waste, as identified above on Line No(s). _____ is not prohibited from land disposal & is subject to a deadline extension or variance, e.g., treatability variance, case-by-case extension. Describe below any extension or variance that applies to this waste & include applicable dates:

Generator's Authorized Signature _____

Name & Title (Printed or Typed) _____

Date _____

Clean Harbors Kansas, LLC
RCRA Permit Application
Section H
Contingency/Emergency Plan

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May 17, 2008
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Clean Harbors Kansas, LLC
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Section H
Contingency/Emergency Plan

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**Clean Harbors Kansas, LLC
RCRA Permit Application
Section H
Contingency/Emergency Plan**

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Table H-2, Emergency Equipment List

List of Appendices

Appendix H-A, Emergency Response Coordinator Authorization
Appendix H-B, Emergency Telephone List of Local Authorities
Appendix H-C, Coordination Agreement Letters

List of Referenced Drawings

Drawings Located in Section Y, Drawings
Drawing 50-01-03-002, Emergency Equipment/Evacuation Routes

Acronym Table

Clean Harbors Kansas, LLC (CHK)
Emergency Response Coordinator (ERC)
City of Wichita Fire Department (CWFD)
Hazardous Materials Response Team (HMRT)
City of Wichita Police Department (CWPD)
National Response Center (NRC)
Reportable Quantity (RQ)
Local Emergency Planning Committee (LEPC)
Kansas Department of Health and Environment (KDHE)
National Fire Protection Association (NFPA)
Personal Protective Equipment (PPE)
Self-Contained Breathing Equipment (SCBA)

H-1 Introduction:

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This Contingency/Emergency plan, when implemented, will minimize hazards to human health and the environment due to events such as fires, explosions, and/or releases of hazardous waste. This plan contains provisions addressing the requirements of 40 CFR Part 270 and 40 CFR Part 264. It is presented in a format designed to be useful for employees and response personnel during an emergency and for employee training purposes.

Copies of the plan will be kept at the facility and provided to the appropriate local authorities and emergency response agencies that may be called upon to provide emergency services. Amendment of the Emergency/Contingency Plan will be performed in accordance with the permit modification requirements of 40 CFR 270.42. The plan will be reviewed and may be amended, if necessary, whenever:

- the permit is revised;
- the plan may be improved by addressing shortcomings noted during practice or actual implementation;
- the list of Emergency Response Coordinators (ERC) changes, or the list of emergency equipment changes;

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- the facility changes in a way that materially increases the potential for fires, explosions, releases of hazardous waste or hazardous waste constituents; or
- the facility changes in a way that affects the implementation of the plan.

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H-2 General Information: 40 CFR 264.52, 264.53

H-2a Facility name:

Clean Harbors Kansas, LLC

H-2b Owner and Operator of Facility:

H-2b(1) Facility Operator:

Clean Harbors Kansas, LLC

2549 North New York Avenue

Wichita, Kansas 67219

H-2b(2) Facility Owner(s):

Clean Harbors Kansas, LLC

2549 North New York Avenue

Wichita, Kansas 67219

H-2b(3) Facility Telephone Number:

Office: 316/269-7400

Note: See Table H-1 for telephone numbers for Emergency Response
Coordinators.

H-2c Location:

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The facility is located at 2549 North New York Avenue in Wichita, Sedgwick County, Kansas, ZIP code 67219.

This address is in the Northeast quarter of the Southeast quarter of Section 4, Township 27 South, Range 1 East.

H-2d Layout and Site Plan:

See Figure H.1, Emergency Equipment/Evacuation Routes, Drawing 50-01-03-002.

Note: Full size reference drawings are available for review from the facility, and are included in Section Y of the Part B permit application, Referenced Drawings.

H-2e Description of Facility Operations:

CHK treats, recovers for recycling, and stores for subsequent off-site disposal, hazardous and nonhazardous wastes. Detailed operating and design descriptions are presented in the facility RCRA Permit Application (Parts A and B), which is available for review at the facility. All RCRA regulated storage areas and treatment equipment will have secondary containment structures, which provide adequate run-on and run-off controls.

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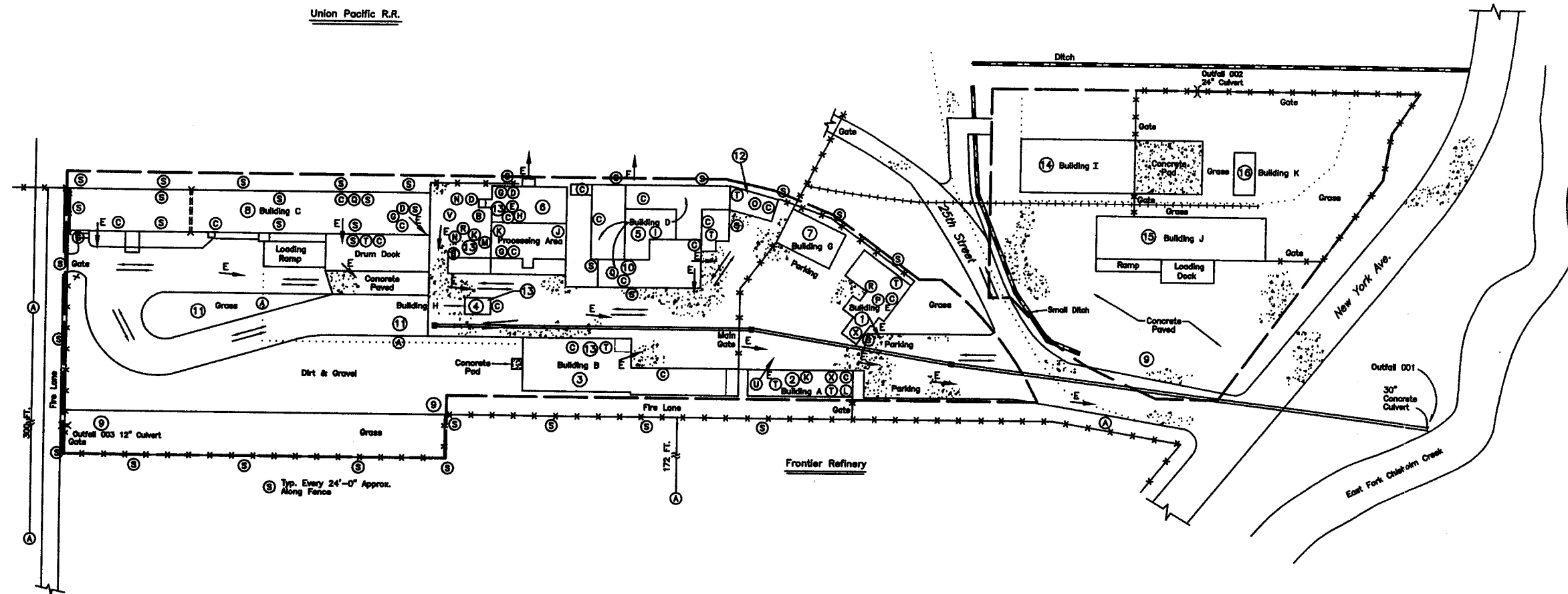
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Figure H.1. Emergency Equipment/Evacuation Routes

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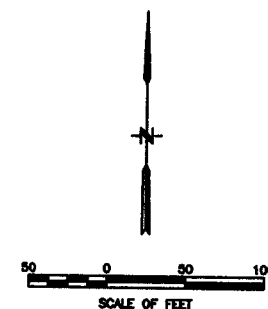


Emergency Equipment Legend:

- | | |
|---|--------------------------------|
| (A) Fire Hydrant | (H) Protective Clothes & Boots |
| (B) Portable 150 Lb. Fire Extinguisher | (O) Portable Sump Pump |
| (C) Hand-Held Fire Extinguisher | (P) First Aid Kit |
| (D) Emergency Alarm | (Q) Squeegee |
| (E) Shovel | (R) Hardhats |
| (F) Portable P.A. System | (S) No Smoking/Danger Signs |
| (G) Oil Absorbent | (T) Telephone |
| (H) Empty Drums | (U) Foam Equipment |
| (I) Air Compressor | (V) Vehicles |
| (J) Flexible Hose & Quick Cplgs. | (W) Oxygen |
| (K) Shower & Eye Wash | (X) Fire Blanket |
| (L) Goggles & Face Shields | |
| (M) Organic Vapor Masks, SCBA, Body Harness | |
| | E → Evacuation Route |

Building Legend:

- | |
|---|
| (1) Administration Offices, Building 'E' |
| (2) Lab/Admin., Building 'A' |
| (3) Hazardous Waste Management, Building 'B' |
| (4) Operations Office, Building 'H' |
| (5) Hazardous Waste Management, Building 'D' |
| (6) Process Area |
| (7) Break Room, Building 'G' |
| (8) Hazardous Waste Management, Building 'C' |
| (9) Monitoring Wells |
| (10) Sparging/Hot Room Area |
| (11) Remote Sprinkler Tie In |
| (12) Maintenance |
| (13) Emergency Showers |
| (14) Hazardous Waste Management, Building 'I' |
| (15) Hazardous Waste Management, Building 'J' |
| (16) Offices, Building 'K' |



Legend:

- | | |
|-----------|--------------------------------------|
| +++++ | : Railroad Tracks |
| -x-x- | : Fence |
| --- | : Property Line |
| --- | : Secondary Containment Berm or Wall |
| [Pattern] | : Pavement |
| ---- | : Drainage Boundary |
| [Square] | : Storm Drain Catch Basins |
| --- | : Underground Storm Sewer Line |
| --- | : Truck Routes |

| | | | | | | | | | | | | |
|--------------------|--|-------------------------|--|--------|------|----------|----------|---------|-------|------|--|------|
| REFERENCE DRAWINGS | | A RCRA PART B SUBMITTAL | | K.M.C. | DATE | APPR. BY | DRAWN BY | CHECKED | SCALE | DATE | TITLE | REV. |
| | | | | | | | | | | | CLEAN HARBORS KANSAS, LLC WICHITA FACILITY EMERGENCY EQUIPMENT/EVACUATION ROUTES PLAN | |
| | | | | | | | | | | | Figure H-1 | A |

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H-3 Emergency Response Coordinators: 40 CFR 264.52(d), 264.55

The Emergency Response Coordinator (ERC) will be responsible for implementing the Contingency/Emergency plan as necessary in the event of an exigent situation. Each of the personnel listed in Table H-1, Emergency Response Coordinators, are qualified to assume the responsibilities of ERC. Each ERC will be familiar with all aspects of the facility's Contingency/Emergency Plan, operations and activities at the facility, the location and nature of wastes handled, the location of records within the facility, and the facility layout. An attempt will be made to contact the primary ERC in the event of an exigency; if the primary ERC is not available, the alternate ERC(s) will be called until one is reached.

The personnel listed in Table H-1, Emergency Response Coordinators, have full authority to commit all facility resources necessary to carry out the Contingency/Emergency Plan. A letter providing authorization for action by an ERC is provided in Appendix H-B, Emergency Response Coordinator Authorization.

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Table H-1

Emergency Response Coordinators

Primary Emergency Response Coordinator

Name: Matt Noble

Work: 316-269-7400

Ex. 6 PII

Alternate Emergency Response Coordinator

John Martin

Work: 316-269-7498

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H-4 Implementation:

This Plan will be implemented in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or waste constituents that may threaten human health and the environment. The ERC will be contacted if a fire, explosion, or release of hazardous waste might warrant implementation of this Plan. The ERC will determine whether implementation of the Contingency/Emergency Plan is necessary. Minor events which do not meet these criteria may be resolved with due regard to personnel health and safety without implementation of this plan. The following types of situations may be justification for implementing this plan.

H-4a Fires and/or Explosions:

- Fire that may cause harm to human health.
- Fire that may cause release of toxic fumes.
- Fire that may spread and could possibly ignite other nearby materials, either on-site or off-site, or could cause heat-induced explosions.
- Use of fire suppressants that could result in contaminated run-off.

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- Explosion which has or could:
 - result in danger from flying fragments or shock waves
 - ignite other hazardous waste at the facility
 - release toxic fumes.

H-4b Material Releases:

- A release of toxic vapors or a significant volume of flammable liquids or vapors that could present a fire or vapor explosion hazard.
- A release that could result in off-site soil contamination and/or surface water contamination.
- A release that could endanger human health or the environment for other reasons.

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H-5 Emergency Response Procedures:

H-5a Notification Procedures: 40 CFR 264.56(a)(2), 264.56(d)

In the event of an emergency which may require notification of outside authorities, the ERC or person designated by the ERC, shall call the appropriate emergency authorities; the KDHE will be notified within 24 hours or in as timely a manner as is possible of any events that result in implementation of this Emergency/Contingency Plan.

A telephone listing of these authorities is provided in Appendix H-B, Emergency Telephone List of Local Authorities. This telephone list will be posted at or nearby every telephone in the active portion of the facility; emergency telephone numbers are also available in office areas. The person initiating the call will provide as much of the following information as is available.

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- Name of caller
- Name of facility and telephone number
- Address and location of Facility
- Time and type of incident
- Type and quantity of material(s) involved
- Extent of injuries
- Possible hazards to health and environment outside the facility

The specific authorities to be notified are as follows.

- The Sedgwick County Emergency Medical Service (EMS) will be called to respond to injuries to personnel as needed. Arrangements to treat personnel injuries have been made with Via Christi (St. Francis) Emergency Center.
- In the event of a fire, explosion, or major spill, the City of Wichita Fire Department (CWFD) will be notified as needed. Arrangements have been made with the CWFD Hazardous Materials Response Team (HMRT); the HMRT is prepared to respond to a fire, explosion, or major spill at the CHK facility.

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- Similarly, for situations which may require response from the local police (i.e., evacuation), the City of Wichita Police Department (CWPD) will be notified. If the CWPD officials determine that additional assistance is needed, they may contact the Sedgwick County Sheriff, and/or the Kansas Highway Patrol.

In the event that the ERC determines that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, the appropriate local emergency authorities will be notified. The ERC will be available to assist authorities in evaluating the situation regarding potential evacuation of an area outside of the facility. In addition, the National Response Center (NRC) will be notified in the event of a release of a Reportable Quantity (RQ) within a twenty-four (24) hour period.

If there is evidence of a Section 304 RQ release off site, the Local Emergency Planning Committee (LEPC) will be notified in accordance with said section of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 355).

The Kansas Department of Health and Environment (KDHE) will be notified of incidents through reporting as specified in Section H-9.

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H-5b Identification of Hazardous Materials: 40 CFR 264.56(b)

Whenever there is a release, fire, or explosion that may threaten human health or the environment, the ERC will immediately attempt to determine the character, exact source, amount, and areal extent of any released materials. Facility records, manifests, truck placards, etc. may be reviewed or inspected in an effort to identify the waste that may be involved in an exigent situation. A chemical analysis may be performed as necessary.

H-5c Hazard Assessment: 40 CFR 264.56(c)

The ERC will assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment will consider both direct and indirect effects of the release, fire, or explosion, including:

- the possible effects of any toxic, irritating, or asphyxiating gases that are generated,
- the possibility of fire spreading to other areas or causing a heat induced explosion,
- the risk to which facility personnel might be exposed by attempting to control a fire or release,

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- the effects of any hazardous surface water run-off from water or chemical agents used to fight fires, and
- the potential of contaminating surface water or ground water from a spill or release of hazardous material.

The ERC will utilize available information to make this assessment, including the quantity of hazardous material involved, the rate of release, and the conditions surrounding the incident.

H-5d Control Procedures: 40 CFR 264.52(a), 264.56

In the event of an emergency, the necessary provisions of this Contingency/Emergency plan will be carried out as described below.

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The person who first discovers the incident, if it is safe to do so, will:

- evacuate injured personnel,
- Notify the Emergency Response Coordinator,
- stop the spread of contamination (e.g., turn off a valve on a tank),
- begin primary containment of liquids (i.e., dikes, sumps),
- order the evacuation of other personnel from the area surrounding the incident, if necessary.

Once the ERC has been notified and is on the scene, he/she will then assess the situation further with the information that is available at this time. The ERC will immediately implement, as necessary, the following provisions of this Contingency/Emergency Plan (if not previously implemented).

- Activate internal facility alarms or communication systems to notify all facility personnel of the incident.
- Identify the character, exact source, amount, and areal extent of any released material, if possible.

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- Assess the possible hazards to human health or the environment. If the assessment indicates that there is a threat to human health or the environment outside the facility, or if there is evidence of a release of a RQ of hazardous material outside the facility, the ERC will implement the notification provisions of this Contingency/Emergency Plan per 40 CFR 264.56(d).
- Coordinate the evacuation of personnel from immediate danger and coordinate first aid for injured personnel.

After the initial assessment is completed, the ERC will also, as necessary, implement the following procedures.

- Coordinate the appropriate response procedures according to the incident. These procedures are presented in H-5e.
- Initiate remedial actions to reduce the impact of the incident, as appropriate.
- Ensure that any waste generated during clean up is properly managed, and that no waste that may be incompatible with the released material is managed at the affected unit until the cleanup procedures are completed.

Additional responses may be warranted depending on the type of incident. The response procedures outlined in H-5e include the items that the ERC will consider in determining

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additional responses. This Plan serves as a guide rather than an unyielding set of procedures. The ERC will consider all options presented in this Plan and implement them as appropriate.

H-5e Emergency Response Procedures: 40 CFR 264.56

H-5e(1) Injuries to Personnel:

The following response actions are to be considered in the event that an injury occurs at the facility.

- Based on the assessment of hazards to health which may be present, and if it is safe to do so, evacuate injured personnel from immediate danger using appropriate Personal Protective Equipment (PPE).
- Perform CPR or artificial respiration, if needed, on the injured.
- Notify Sedgwick County EMS according to notification procedures in Section H-5a.
- Wash eyes, skin, etc. of injured personnel with water, if needed.
- Treat injuries (see Figure H.2 for the location of first aid stations).
- Establish emergency operations center.

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- Notify emergency operations center of incoming injured.
- Dispatch site personnel to meet and direct incoming emergency vehicles.

H-5e(2) Fires/Explosions:

During an emergency, the ERC will take all reasonable measures necessary to ensure that fires and explosions do not occur, recur, or spread to other hazardous waste at the facility.

The following response actions are to be considered if a fire and/or explosion should occur at the facility.

- Establish an emergency operations center.
- Extinguish any fire with fire extinguishers, if appropriate.
- Call the Wichita Fire Department HMRT.
- Evacuate site according to evacuation procedures in H-8.
- Notify Derby refinery and Union Pacific in the event of an evacuation.
- Contact appropriate local agencies (see H-5 for notification procedures). The telephone list is posted at or near telephones or is available in office areas.
- Notify the KDHE.
- Notify the National Response Center (NRC).

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- Dispatch site personnel to meet and direct incoming emergency vehicles.
- Use water spray to cool tanks and containers that are exposed to heat as a result of the fire and/or explosion.
- Protect other operations and vehicles from the incident. This includes, where applicable, stopping processes and operations, collecting and containing released wastes, removing or isolating containers, or moving vehicles.
- Monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment.
- Stop the release of liquid by plugging, patching, or unloading any leaking tanks, pipes, or other equipment.
- Absorb liquid waste with absorbent materials and place in containers for management. Alternatively, larger spills can be pumped into containers or tanks.

H-5e(3) Releases:

During an emergency, the ERC will take all reasonable measures necessary to ensure that releases do not occur or recur. The following list contains response procedures to be considered in the event that a release of hazardous waste occurs.

- Evacuate immediate area around incident.

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- Attempt to contain spills, if it is safe to do so.
- Transfer leaking or ruptured container(s) to an overpack.
- Establish emergency operations center.
- Determine the source of spill/release and shut down the affected unit to eliminate additional material release.
- Stop additional release of material to the environment and control surface leakage (e.g., pump the spilled material to tanks, transfer contents of tank to another tank, build containment dikes, transfer released materials to containers).
- Clean up the spill using on-site equipment. As appropriate, these procedures will include soaking up liquid with absorbants; removal of standing liquids and/or waste from sumps, trenches, or low points of the floor; removal of material adhering to the surface; and steam cleaning and/or a water rinse.
- If on-site personnel cannot contain/cleanup spill, contact appropriate state and local agencies (see Section H-5a for notification procedures).
- Contact the Wichita Fire Department Hazardous Materials Response Team (HMRT) for RQ spills. The telephone list is posted next to all phones or in all offices in the facility (see Appendix H-C for phone numbers).
- Evacuate the facility (see H-8 for evacuation procedures and routes).
- Within twenty-four (24) hours, or as soon as practicable after detection of the release, transfer sufficient waste from the tank or container, as necessary, to

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prevent further release of hazardous waste to the environment and to allow inspection of the unit. Any tank system from which there has been a leak or spill, or which is unfit for use, will be emptied and removed from service in accordance with 40 CFR 264.196.

- After the release is controlled, and it is deemed safe to do so, response personnel will enter the affected building or area to assess damage and to determine the condition of waste containers, and other affected equipment.
- Stop the release of liquid into an area by plugging, patching, or unloading any leaking tanks, pipes, or other equipment.
- Stop the release of liquid from its container by placing the leaking container into an overpack drum.

After an emergency, the ERC will initiate clean-up activities including the treatment, storage, and/or disposal of recovered waste, contaminated soil or surface water, or other material that results from a release, fire, or explosion at the facility.

H-5f Post-Emergency Activities: 40 CFR 264.56(h)(2), (i)

When operations of a waste management unit have been suspended due to an emergency resulting in implementation of this Plan, the unit and all equipment that was used in implementing the Plan will be assessed. Emergency equipment used in response to the

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emergency must be determined to be fit for reuse or replaced. The Regional Administrator (Region VII) and the KDHE will be notified (per 40 CFR 264.56) when the equipment is fit for use, prior to resuming operation of the affected unit.

The following actions will be considered when decontaminating emergency equipment.

- Provide adequate safety equipment and protective clothing for CHK personnel involved in remedial actions.
- After a fire, explosion, or spill event is controlled and it is deemed safe to do so, enter the affected building or area to assess damage and determine the condition of waste containers, tanks, and other affected equipment.
- Utilize on-site equipment for remedial actions (see H-6 for list of on-site equipment).
- The Tanker Bay in the Processing Area may be used to decontaminate vehicles and equipment (i.e., trucks, portable pumps, etc.). The rinsate will be collected and managed as a hazardous waste.
- Reusable PPE will be decontaminated, as appropriate. PPE which is unsuitable for reuse will be managed for disposal.
- Inspect the affected unit(s) and ensure that no waste that is incompatible with the released material is managed in the unit(s) until cleanup procedures are

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completed. If incompatible waste is discovered near each other, the incompatible waste will be removed to a safe location away from other incompatible wastes.

- If there is a release to a secondary containment system of a tank or tank system that damages the secondary containment system, the secondary containment system will be repaired before the tank(s) are returned to normal operation. If the secondary containment system cannot be repaired, that tank or tank system will have to be closed pursuant to 40 CFR §264.196(e)(1).
- Note in the operating record the time, date, and details of any incident that required implementing the contingency plan.
- Submit, from CHK or the ERC, a written report of the incident to the Secretary within 15 days after the incident (see H-9 for the detailed reporting requirements).
- Submit, from CHK or the ERC, a written report to the Secretary certifying that any emergency equipment involved in the incident or in the response and remediation are fit for their intended use.

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H-6 Emergency Equipment:

Emergency equipment is available at the facility for response to emergency situations.

Emergency equipment maintained on site is summarized in Table H-2, Emergency Equipment List. This equipment will be accessible and will be regularly inspected and appropriately serviced. A description of this equipment is listed below.

H-6a Emergency Alarm and Communication Systems:

The facility is equipped with emergency alarm and communication systems to be used to notify and give emergency directions to both on-site and off-site personnel. These systems include:

- a facility-wide alarm system (siren), which is capable of alerting personnel of emergencies;
- a PA system which includes an intercom system accessible by telephones throughout the facility; and
- telephones, which are the primary means of communication within the facility and between the facility and the local emergency authorities.

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**Table H-2
Emergency Equipment List**

| Equipment | Capabilities |
|-------------------------------|--------------------------------|
| Fire Extinguishers | Small fire control |
| Foam Supply | Fire control |
| Portable Sump Pump | Collection of spills/leaks |
| SCBA/Respirators | Minimize exposure of personnel |
| Personal Protective Equipment | Minimize exposure of personnel |
| Air Compressor | Supplied air line |
| Containers/Overpacks | Storage of collected material |
| Absorbants | Spill control |
| Squeegee, Shovel | Spill collection/containment |
| Portable P.A. System | Communication |

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H-6b Fire extinguishers:

There are fire extinguishers located throughout the facility as required by the appropriate local fire code as well as the National Fire Protection Association (NFPA) code. The facility employs Type ABC fire extinguishers which are multipurpose combinations of the extinguisher types listed below.

- Type A is capable of extinguishing fires involving ordinary combustible wastes such as wood, cloth, paper, rubber, and many plastics.
- Type B is capable of extinguishing fires involving flammable liquids, oils, greases, tars, oil base paints, lacquers, and flammable gases.
- Type C is capable of extinguishing fires involving energized electrical equipment.

In Buildings I and J, small containers of dry powder fire extinguisher will be kept on hand in any area where open containers are handled (i.e., Areas I300 and J200). In addition, Buildings I and J will be provided with a foam fire suppression system instead of the water sprinklers provided in other areas of the plant.

H-6c Fire hydrants:

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Fire hydrants are available for fire control. They receive their water supply from the City of Wichita Department of Water.

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H-6d First Aid Stations:

Cabinets of first aid and medical supplies such as bandages, tape, antibacterial ointments, pain relievers, splints, local and topical anesthetics and eyewash bottles and solution are located throughout the facility (see Figure H.1 for first aid station locations).

H-6e Personal Protective Equipment (PPE):

The PPE listed below is available to facility personnel; PPE is issued as appropriate.

- Chemically resistant garments
- Chemically resistant gloves
- Chemically resistant boots
- Coveralls
- Steel-toed boots
- Hard hats
- Face shields and protective eyeglasses
- Air purifying respirators
- Self-contained air supply (as described below)

H-6f Safety Showers and Eye Wash Stations:

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There are two (2) stations located in the facility. They are designed to meet OSHA requirements. Locations for these stations are provided on Figure H.1, Emergency Equipment/Evacuation Routes.

H-6g Self-Contained Breathing Apparatus (SCBA):

SCBAs are available to provide breathing air, which may be needed by some personnel in the event of an emergency situation. Supplied air will be provided in Buildings I and J.

H-6h Other Emergency Response Equipment:

- Portable Pumps - Pumps that handle liquids and sludges are available for recovering any released contaminants.
- Stabilizing agents - Stabilizing materials will be stored in Building B to assist in spill release containment and cleanup.

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- Overpack drums - Overpack drums will be available in each Container Storage Building where containerized hazardous waste is stored. Leaking drums may be placed inside these overpack drums for containment.
- Site Equipment - Mobile equipment may be used to respond to hazardous waste releases. Facility equipment typically maintained includes industrial trucks (forklifts) and a multi-purpose vehicle (Bobcat).

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H-7 Coordination Agreements: 40 CFR 264.52(c), 264.37

H-7a Emergency Authorities:

Coordination agreements with local emergency authorities have been negotiated; letters to these authorities are presented in Appendix H-D, Coordination Agreement Letters in compliance with 40 CFR 264.37. Copies of this plan will be submitted to the organizations identified in Appendix H-D; amendments to the plan will be forwarded to these authorities as required. Procedures for notification of emergency authorities are described in Section H-5a.

H-7b Local Contractors:

In the event that on-site cleanup of a spill or release is required, CHK has limited equipment on-site to respond. Outside contractors may be used as needed to respond to a spill or release. In addition, Clean Harbors has a Remedial Services Division that is capable of responding to hazardous waste spills and/or releases.

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H-8 Evacuation Plan: 40 CFR 264.52(f)

In each exigent situation, the ERC will determine whether a facility evacuation is necessary to protect the health and safety of facility personnel. The following criteria will be considered in making this decision.

H-8a Criteria for Evacuation:

- Fire and/or explosion that releases vapors or fumes which will endanger the health of facility personnel.
- Fire and/or explosion that could ignite other hazardous wastes and, in turn, endanger facility personnel.
- Spill and/or release that releases vapors or fumes that will endanger the health of facility personnel.

If the ERC determines that a site evacuation is necessary, the following procedures will be followed to implement the evacuation.

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- The ERC or person designated by the ERC shall activate the appropriate alarms/sirens indicating that a site evacuation is required. If the alarm/siren system is not functioning, the intercom system will be used.
- All facility personnel shall meet at the appropriate evacuation point(s).
- The ERC or person(s) designated by the ERC will perform a count of all personnel at the evacuation point(s).
- If any persons are not accounted for, the ERC will coordinate efforts to search the appropriate areas to locate the missing personnel.
- Personnel shall evacuate the site according to the evacuation routes shown on Figure H.1. All personnel will be informed of these procedures and routes in their initial training program.

Personnel may return to the site when allowed to do so by the ERC.

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H-9 Required Reports: 40 CFR 264.56(j)

H-9a Reports to the Secretary:

If the Contingency Plan is implemented per 40 CFR 264.51(b), CHK will submit a written report to the Secretary within 15 days after the incident in compliance with 40 CFR 264.56(j).

The report will include the following information.

- Name, address, and telephone number of the owner or operator
- Name, address, and telephone number of the facility
- Date, time, and type of incident (e.g., fire, explosion)
- Name and quantity of material(s) involved
- The extent of injuries, if any
- An assessment of actual or potential hazards to human health or the environment, where this is applicable
- Estimated quantity and disposition of recovered material that resulted from the incident
- Notification that the equipment used in response to the incident is fit for its intended use

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H-9b SARA Reporting:

As soon as practicable after a release which requires notice under the Superfund Amendments and Reauthorization Act (SARA), CHK or the ERC will provide a written report to the LEPC as required by regulations set forth under that Act.

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Contingency/Emergency Plan
Appendix H-A - Emergency Response Coordinator Authorization**

Appendix H-A

Emergency Response Coordinator Authorization

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Section H
Contingency/Emergency Plan
Appendix H-A - Emergency Response Coordinator Authorization**

NIELSEN, DAVID B

From: Foley, Michael A
Sent: Tuesday, May 13, 2008 6:56 AM
To: NOBLE, JAMES M; MARTIN, JOHN R
Cc: ANDERSON, KEITH LYNN; NIELSEN, DAVID B; Crisenbery, Michael

Folks,

This e-mail is to authorize you to commit any and all company resources in response to a contingency emergency.

Mike

Mike Foley
Vice President of TSD Operations
Clean Harbors Environmental Services
42 Longwater Drive
PO Box 9149
Norwell, MA 02061-9149
Office: 781.792.5000 Ext. 5166
Mobile: 617.590.0842
Fax: 781.792.6915
Email: foleym@cleanharbors.com
Web: www.cleanharbors.com

**Clean Harbors Kansas, LLC
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Section H
Contingency/Emergency Plan
Appendix H-B - Emergency Telephone Listing of Local Authorities**

Appendix H-B

Emergency Telephone Listing of Local Authorities

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Section H
Contingency/Emergency Plan
Appendix H-B - Emergency Telephone Listing of Local Authorities**

Emergency Telephone Listing of Local Authorities

**Clean Harbors Kansas, LLC
2549 North New York Avenue
Wichita, Kansas, 67219**

Office Telephone No.: 316-269-7400

| Agency | Office Telephone | Emergency Telephone |
|---------------------------------|------------------|---------------------|
| Sedgwick Co. EMS | 316/383-7994 | 911 |
| St. Francis Emergency Center | 316/268-5052 | 316/268-5052 |
| Wichita Fire Dept. | 316/268-4451 | 911 |
| WFD HazMat Team | 316/838-8655 | 911 |
| Wichita Police Dept. | 316/268-4239 | 911 |
| KDHE | 785/296-1079 | 785/296-0614 |
| EPA Region VII | 913/281-0991 | 913/281-0991 |
| National Response Center (NRC) | 800/424-8802 | 800/424-8802 |
| Derby Refinery After 5:00 PM | 316/262-5703 | |
| Union Pacific | 316/268-9433 | |

Ex. 6 PII

Note: See Table H-1 for list of ERCs.

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Section H
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Appendix H-D - Coordination Agreement Letters**

Appendix H-C

Coordination Agreement Letters

**May 17, 2008
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2549 North New York Street
Wichita, KS 67219

June 6, 2007

Sedgwick County Emergency Medical Services
P. O. Box 607
Wichita, Kansas 67201-0607

Certified Mail Receipt No.
7000 0520 0021 6578 8517

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

If, after review of the information presented or the entire Contingency Plan, you believe information in the Plan needs to be changed, added, or deleted, please feel free to contact Mr. John Martin at 316-269-7400 so that we can improve this document. No response from your agency signifies that the Contingency Plan is acceptable at this time.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart", is written over a horizontal line.

Lon Stewart
Regulatory Compliance Manager

enclosure



2549 North New York Street
Wichita, KS 67219

June 6, 2007

Via Christi Emergency Services
929 N. St. Francis Street
Wichita, Kansas 67214

Certified Mail Receipt No.
7000 0520 0021 6578 8531

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

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Respectfully submitted,

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Lon Stewart
Regulatory Compliance Manager

enclosure



2549 North New York Street
Wichita, KS 67219

June 6, 2007

City of Wichita Police Department
455 N. Main
Wichita, Kansas 67204-2
Attn: Chief of Police

Certified Mail Receipt No.
7000 0520 0021 6578 8555

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

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Lon Stewart
Regulatory Compliance Manager

enclosure



2549 North New York Street
Wichita, KS 67219

June 6, 2007

Sedgwick County Local Emergency Planning Committee
525 N. Main Street, Room B-10
Wichita, Kansas 67202

Certified Mail Receipt No.
7000 0520 0021 6578 8524

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

If, after review of the information presented or the entire Contingency Plan, you believe information in the Plan needs to be changed, added, or deleted, please feel free to contact Mr. John Martin at 316-269-7400 so that we can improve this document. No response from your agency signifies that the Contingency Plan is acceptable at this time.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lon Stewart", with a long horizontal flourish extending to the right.

Lon Stewart
Regulatory Compliance Manager

enclosure



2549 North New York Street
Wichita, KS 67219

June 6, 2007

City of Wichita Fire Department
455 N. Main
Wichita, Kansas 67204-2
Attn: Hazardous Materials Response Team

Certified Mail Receipt No.
7000 0520 0021 6578 8548

RE: Facility Contingency/Emergency Plan
Clean Harbors Kansas, LLC.,
EPA ID No. KSD 007246846

Emergency Responder:

The Contingency Plan required under Subpart D of 40 CFR 264 has been amended as required by section 264.4 to reflect a change in the list of Emergency Response Coordinators at the facility.

A replacement page is provided for Table H-1, page 11. Simply replace page 11 in your copy of our Plan with the page provided.

If, after review of the information presented or the entire Contingency Plan, you believe information in the Plan needs to be changed, added, or deleted, please feel free to contact Mr. John Martin at 316-269-7400 so that we can improve this document. No response from your agency signifies that the Contingency Plan is acceptable at this time.

Respectfully submitted,

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Lon Stewart
Regulatory Compliance Manager

enclosure

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Training Program

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Appendix I-A, Job Descriptions, Duties, and Training (Examples)
Appendix I-B, Introductory Training Seminar Outline
Appendix I-C, Example Introductory Training Seminar Test
Appendix I-D, Job-Specific Training Topics (Examples)

List of Acronyms

Clean Harbors Kansas, LLC (CHK)
Health, Safety and Training Manager (HSTM)
Material Safety Data Sheets (MSDS)

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I-1 Outline of Training Program: 40 CFR 270.14(b)(12) and 270.16

This training program has been developed in accordance with the regulatory requirements of 40 CFR Parts 270 and 264. The program is designed to provide the information needed by Clean Harbors Kansas, LLC(CHK) personnel to assist them in understanding the processes and materials with which they are working and the potential safety and health hazards associated with those processes and materials. The training program also facilitates instruction of facility personnel in the proper procedures for preventing and reacting effectively to emergency situations. Where appropriate, the training program provides information regarding inspection, repair, and replacement of facility emergency equipment.

The goal of the training program is to train personnel to perform their job functions in an efficient and safe manner, and in compliance with applicable regulations and permit requirements.

I-1a Job Titles and Duties: 40 CFR 264.16(d)(1), (2) and (3)

As required in 40 CFR 264.16, records at the facility will include:

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- the job titles for positions at the facility related to hazardous waste management,
- the names of the employees filling these jobs,
- a description of these jobs including duties, and
- a description of the minimum qualifications for employees filling these jobs.

The following are job titles that are most relevant to the compliant operation of CHK

- Facility Manager
- Operations Manager
- Laboratory Manager/Senior Chemist
- Laboratory Technician
- Facility Inspector
- Health, Safety and Training Manager
- Operator
- Operator Helper
- Secretary/clerk

Examples of typical job descriptions are contained in Appendix I-A, Typical Job Descriptions,

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Duties, and Training. These job descriptions include a summary of the duties, qualifications, and training for the job titles listed above.

I-1b Training Content, Frequency and Techniques: 40 CFR 264.16(a)(3), 264.16(c) and 264.16(d)(3)

Initial training of facility employees will consist of:

- 24 hours of safety training as described by 29 CFR 1910.120(p)(7), for operations personnel,
- an introductory training seminar, and
- job specific training.

Each employee must complete the introductory training seminar prior to working without direct supervision in any hazardous waste management area at the facility. The introductory training seminar will last approximately sixteen (16) hours. The topics covered during this seminar include facility specific items such as the Contingency/Emergency Plan, as well as basic training in general topics such as chemistry and occupational safety. An outline of the seminar is provided in Appendix I-B, Introductory Training Seminar Outline. After completion of the

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introductory training seminar, the employees will be tested to evaluate their comprehension of the information presented. An example of the type of test employees may be given is provided in Appendix I-C, Example Introductory Training Seminar Test.

In addition to the introductory training seminar, employees will be provided with job-specific training such as on-the-job training. The type and content of the job-specific training will depend on the skills and level of expertise demanded by the job. Appendix I-D, Typical Job-Specific Training Topics includes a list of typical topics for job-specific training that will be provided to the appropriate employees. The job-specific training completes the employee's initial training. Employees will not be allowed to perform unsupervised, hazardous waste management duties prior to completion of initial training.

Continuing training will be provided for employees performing certain jobs after the employee completes the initial training. At a minimum, the continuing training will consist of an annual review of the introductory training seminar.

Training techniques will vary depending on the subject. Typically, training techniques may involve classroom lecture, on-the-job, and audio/visual demonstration. Training instructors will

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include personnel who have experience and/or training in that area and outside instructors such as manufacturer's representatives. On-the-job training is conducted by qualified facility personnel.

I-1c Director of the Training Program: 40 CFR 264.16(a)(2)

The Health, Safety and Training Manager (HSTM) will administer the training program. The duties and qualifications of the HSTM are provided in Appendix I-A. The duties of the HSTM include maintaining records that demonstrate that personnel are receiving the appropriate training in accordance with the training program. The minimum qualifications for the HSTM will be a college degree and/or equivalent experience with a knowledge of regulatory and safety requirements. The HSTM will be trained in hazardous waste management procedures.

I-1d Relevance of Training to Job Position: 40 CFR 264.16(a)(2)

It is important that employees be trained and possess a knowledge of the concepts required to perform their duties. Each employee engaged in hazardous waste management activities must be able to act correctly and safely while fulfilling job responsibilities.

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In addition to the introductory training seminar that all employees will attend, relevant job-specific training will be provided to appropriate employees. For example, if an employee is in a supervisory or management position requiring an understanding of the Kansas rules for the management of hazardous waste, then the employee is trained accordingly. The job descriptions contained in Appendix I-A include examples of job-specific training that are relevant to the position. Appendix I-D contains outlines of typical topics for job-specific training.

I-1e Training for Emergency Action/Response: 40 CFR 264.16(a)(3)

The introductory training seminar includes training on the Contingency/Emergency Plan. Emergency action procedures are included in the Contingency/Emergency Plan. In accordance with 29 CFR 1910.120(p)(8) and CHK's Contingency/Emergency Plan, the facility may evacuate employees in the event of an emergency, and may not have a specially trained Emergency Response Team. The training topics provided during the seminar regarding the Contingency/Emergency Plan are provided in Appendix I-B. The seminar is designed to train employees to act appropriately during emergency situations.

In addition to the introductory training seminar, appropriate employees will receive job-specific

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training on emergency procedures, equipment, and systems. Where applicable, this job-specific training will include:

- waste identification;
- waste processing procedures;
- instruction on machinery operation;
- procedures for the shutdown of operations;
- instruction on safety equipment;
- procedures for using, inspecting, repairing, and replacing facility emergency equipment;
- procedures for using the communications or alarm systems;
- procedures for fires or explosions; and
- procedures for incidents of potential soil or ground-water contamination.

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I-2 Implementation of Training Program: 40 CFR 264.16(b), 264.16(d)(4) and 264.16(e)

The HSTM will monitor the training program to ensure that all employees complete their initial training and an annual review of the introductory training seminar. The initial training must be completed within six (6) months of either:

- initial employment,
- assignment to CHK if the individual is employed by Clean Harbors at the time of the assignment (unless equivalent training was received in his/her previous assignment), or
- transfer to a new position within the facility, if the employee has not previously received the appropriate training.

In the last two (2) cases, the employee will only be required to receive instruction in those portions of the initial training for which the employee has not yet been trained. For example, an employee who transfers from one position to another within CHK will not be required to repeat the introductory training seminar or any job-specific training the employee has already completed.

Records of the training provided to employees as part of the training program will be maintained

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at the facility and on a corporate supported database. These training records will include:

- date of training,
- training topics,
- instructor's name,
- employees in attendance, and
- any test results, if appropriate.

Training records for current employees will be maintained until closure of the facility. Training records for former employees will be maintained for at least three (3) years from the date the employee last worked at the facility. Employee training records may accompany personnel transferred to CHK from another facility operated by Clean Harbors.

**Clean Harbors Kansas, LLC
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APPENDIX I-A

**JOB DESCRIPTIONS, DUTIES AND TRAINING
(EXAMPLES)**

**Clean Harbors Kansas, LLC
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JOB TITLE: Facility Manager

JOB DESCRIPTION AND DUTIES: Responsible for the safe and efficient management of operations at the facility. Approves the development of all records and manuals at the facility. Responsible for the enforcement of facility safety programs. Coordinates all facility operations with corporate office.

QUALIFICATIONS: College degree and substantial experience in hazardous waste management. Knowledge of State and Federal Regulations dealing with hazardous waste management.

TRAINING: Introductory training seminar, safety training, technical training, hazardous waste management training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Operations Manager

JOB DESCRIPTION AND DUTIES: Responsible for the management of facility operations. Coordinates all material handling operations in the facility. Responsible for the enforcement of all safety programs. Assists in formulating all records and manuals at the facility. Assumes management of the facility as required.

QUALIFICATIONS: College degree and/or experience in hazardous waste management operations including regulations.

TRAINING: Introductory training seminar, operations training, safety training, technical training, hazardous waste management training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Laboratory Manager/Senior Chemist

JOB DESCRIPTION AND DUTIES: Responsible for the routine operation of the laboratory including organizing and maintaining all laboratory records. Supervises technical employees to insure that all analyses are performed correctly and in a timely manner. Responsible for the analysis of incoming waste samples and designating the appropriate treatment and disposal for them. Participates in environmental monitoring as needed.

QUALIFICATIONS: Degree in Chemistry or Physical Science which included a minimum of sixteen (16) hours of chemistry. A knowledge of chemistry and general laboratory experience such as would be acquired by four (4) years of academic study in the field of chemistry supplemented by at least three (3) years experience performing hands-on analytical laboratory chemistry work.

TRAINING: Introductory training seminar, safety training, technical training, hazardous waste management training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Laboratory Technician

JOB DESCRIPTION AND DUTIES: Responsible for the routine operation of the laboratory under the direction of the Senior Chemist. Performs analysis on pre-shipment samples. Assists in determining the designation of treatment and disposal of customer waste. Responsible for assisting in maintaining all laboratory records and inventory. Responsible for the collection and analysis of environmental samples.

QUALIFICATIONS: Two (2) years college including a minimum of thirteen (13) college credit hours of chemistry plus other science related courses or a minimum of two (2) years laboratory experience.

TRAINING: Introductory Training, First Aid and CPR, Continued Safety Training, Technical Training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Facility Inspector

JOB DESCRIPTION AND DUTIES: Responsible for the timely and effective completion of all facility inspections. Maintains tank gauging records and all other regulatory inspection records for the facility.

QUALIFICATIONS: One (1) year's experience in hazardous waste disposal operations.

TRAINING: Introductory training seminar, operations training, safety training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Health, Safety and Training Manager

JOB DESCRIPTION AND DUTIES: Formulates and implements facility Health and Safety Programs. Ensures that personal protection equipment is available for facility employees. Responsible for routine inspections of facility safety equipment. Responsible for the formulation of the facility Training Program. Responsible for keeping records of Health, Safety, and Training Programs that demonstrate compliance with Federal and State regulations.

QUALIFICATIONS: College degree and/or equivalent experience working with State and Federal regulations, including OSHA regulations.

TRAINING: Introductory training seminar, operations training, safety training, technical training, hazardous waste management training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Operator

JOB DESCRIPTION AND DUTIES: Responsible for the assignment and effective completion of all field activities during a shift. Coordinates operations with area supervisors. Assists in the enforcement of company policy and safety regulations.

QUALIFICATIONS: A minimum of one (1) year experience in industrial waste operation, including basic chemistry knowledge.

TRAINING: Introductory training seminar, operations training, safety training.

**Clean Harbors Kansas, LLC
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JOB TITLE: Operator Helper

JOB DESCRIPTION AND DUTIES: Responsible for the effective and safe completion of all assigned facility operations under the direction of the Operations Manager and/or Operator.

QUALIFICATIONS: Equipment/process experience preferred.

TRAINING: Introductory training seminar, operations training, safety training.

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JOB TITLE: Secretary/clerk

JOB DESCRIPTION AND DUTIES: Responsible for administrative support activities such as typing, answering the phone, filing and recordkeeping.

QUALIFICATIONS: High school diploma or equivalent with office experience.

TRAINING: Introductory training seminar.

**Clean Harbors Kansas, LLC
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Section I
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Appendix I-B - Introductory Training Seminar Outline**

APPENDIX I-B

EXAMPLE INTRODUCTORY-TRAINING SEMINAR OUTLINE

Clean Harbors Kansas, LLC
RCRA Permit Application
Section I
Training Program
Appendix I-B - Introductory Training Seminar Outline

INTRODUCTORY-TRAINING SEMINAR OUTLINE

I. ORIENTATION: (2 hours)

1. Introduction
2. New Employee Communication Checklist
3. Company History
4. Facility Tour

II. REVIEW OF OPERATIONS: (4 hours)

1. General Facility Description
2. Contingency Plan
 - . Contingency plan implementation procedures
 - . Access and use of communication and alarm systems
 - . Response to fires, explosions, spills and/or releases
 - . Site evacuation procedures

III. CHEMICAL TRAINING: (2 hours)

Basic understanding of the characteristics of acids, caustics, and solvents

1. Basic Chemistry
2. Incompatible Wastes

IV. SAFETY TRAINING: (4 hours)

Facility safety requirements and emergency equipment including location and capabilities

1. Facility Housekeeping
2. Job Specific Safety Equipment
3. Eye & Face Safety
 - . Equipment location, inspection, repair and operation

Clean Harbors Kansas, LLC

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Appendix I-B - Introductory Training Seminar Outline

4. Respiratory Protection
 - . Equipment location, inspection, repair and operation
5. Emergency Equipment
 - . Equipment location, inspection, repair and operation
- V. INTRODUCTORY JOB-SPECIFIC TRAINING: (RCRA) (4 hours)
 1. Office Procedures - (Clerical & Technical Personnel)
 - . Telecommunication System
 - . Load Arrival Procedures
 - . Filing System
 - . Log Maintenance
 2. Technical Training - (Laboratory and Supervisory Personnel)
 - . Office Procedures
 - . Load Arrival Procedures
 - . Truck Sampling Procedures
 3. Operational Training - (Operations Personnel)
 - . Review Job Description
 - . Truck Unloading Procedures
 - . Equipment Operation
- VI. Clean Harbors INITIAL TRAINING TEST: (RCRA) (30 minutes)

See Appendix I-C for example test

**Clean Harbors Kansas, LLC
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Appendix I-C - Example Introductory Training Seminar Test**

APPENDIX I-C

EXAMPLE INTRODUCTORY TRAINING SEMINAR TEST

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Appendix I-C - Example Introductory Training Seminar Test

EXAMPLE INTRODUCTORY TRAINING SEMINAR TEST

- 1) What safety gear is required for general facility activities?
- 2) Who is responsible for facility housekeeping and why?
- 3) When and where should you wear eye protection?
- 4) When is it necessary to wear a face shield?
- 5) What areas are designated for "SMOKING"?
- 6) How do you gain access to the loud speaker system?
- 7) What is the "EMERGENCY NOTIFICATION LIST"?
- 8) Where are the "EYEWASH STATIONS" in your work area and how do they operate?
- 9) When and why should you have respiratory protection?
- 10) What are some of the dangers associated with acids?
- 11) Can "fumes" be dangerous to your health?
- 12) What is a Contingency Plan and where is it located?
- 13) What are the two kinds of "EMERGENCY ALARMS"?
- 14) What is the proper procedure for reporting a fire?
- 15) Where are the gathering points in case of an evacuation?
- 16) Name the location of a fire extinguisher in your work area?

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Appendix I-C - Example Introductory Training Seminar Test

- 17) What is the "BUDDY SYSTEM" and why is it used?
- 18) What is the best defense against injury?

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Appendix I-D, Typical Job-Specific Training Topics**

**APPENDIX I-D
JOB-SPECIFIC TRAINING TOPICS
(EXAMPLES)**

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Appendix I-D, Typical Job-Specific Training Topics

TYPICAL JOB-SPECIFIC TRAINING TOPICS

OPERATIONS TRAINING:

Site Security

Security procedures and equipment

Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment

Preparedness and Prevention

Access to and use of internal communications and alarm systems

Access to and use of telephone for summoning off-site help

Access to and use of portable fire extinguishers, spill control equipment, and decontamination equipment

Access to and use of firewater system

Shut down of operations

Contingency/Emergency Plan

Contingency/Emergency Plan implementation procedures

Access and use of communications and alarm systems

Response to fires, explosions, spills, groundwater contamination, and air emissions

Site evacuation procedures

Job-specific use and maintenance of emergency equipment

Hazard Communication Manual

Right-to-Know

Material Safety Data Sheets (MSDS)

Tank Operation and Controls

Site procedures and 40 CFR Part 264, Subpart J

Use and Management of Containers

Site procedures and 40 CFR Part 264, Subpart I

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SAFETY TRAINING:

- . Industrial Hygiene and Decontamination Procedures and policies for decontamination
- . Protective Equipment
 - . Job-specific Protective Equipment
- . First Aid - General Information
 - . Wound and burn management
- . Care in Handling Waste
 - . Procedures for safety in handling and treating wastes
- . Loading and Unloading of Trucks
 - . Site procedures for trucks
- . Specialized Equipment Operation
 - . Procedures for operation and maintenance of heavy equipment
- . Basic Chemistry
 - . Safety in handling chemicals

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TECHNICAL TRAINING:

- . Updating of Waste Stream Approvals
 - . Customer profile updates
- . Manifest Systems
 - . Proper manifest preparation
- . Records
 - . Site-specific records system
- . Sampling and Approval Procedures
 - . Procedure for sampling trucks properly and waste stream approval
- . Waste Identification and Segregation
 - . Procedures for identifying and handling incompatible materials

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HAZARDOUS WASTE MANAGEMENT TRAINING

- . Overview of RCRA hazardous waste management regulations
- . Proper characterization and identification of hazardous wastes
- . Land Disposal Restrictions
- . Overview of DOT hazardous waste management regulations

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Acronym Table

Clean Harbors Kansas, LLC (SKW) L
Treatment, Storage, or Disposal Facilities (TSDFs)
Title 40 of the Code of Federal Regulations (40 CFR)
Hazardous Waste Management Units (HWMUs)
National Priorities List (NPL)
Potentially Responsible Party (PRP)
Kansas Department of Health and Environment (KDHE)
Toxic Characteristic Leaching Procedure (TCLP)
Container Management Unit (CMU)
Toxic Characteristic Leaching Procedure (TCLP)

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J-1 Introduction

This plan describes the activities to be performed at Clean Harbors Kansas, LLC at the time of facility closure; it addresses both partial unit closures and final facility closure.

This plan is contained in the RCRA/HSWA Part B permit application as Section J. When the permit is issued pursuant to this application, this plan will supersede the existing plans covering current interim status operations.

The facility stores, treats, and recovers for recycling hazardous and nonhazardous wastes. LESW blends BTU containing materials for beneficial use and energy recovery as cement kiln fuel and recovers solvents for further management. Clean Harbors Kansas, LLC also stores, processes, and/or manages waste solvents, sludges, solids, and water for subsequent shipment to other permitted Treatment, Storage, or Disposal Facilities (TSDFs) for distillation, beneficial reuse, further treatment or disposal. Clean Harbors Kansas, LLC also stores waste solvent, hydrocarbons, paint-related waste streams, solids, corrosive waste streams, and water-based waste streams. Storage and treatment occurs in both containers and tanks. (For

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a more complete description of activities at Clean Harbors Kansas, LLC, see Section B, Facility Description.) The facility operates under EPA I.D. No. KSD007246846.

The Clean Harbors Kansas, LLC facility does not include disposal units. Also, all tank systems are equipped with secondary containment meeting the requirements of Title 40 of the Code of Federal Regulations (40 CFR) 264.193 (b) through (f). Therefore, the facility is subject to neither the post-closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

J-2 Hazardous Waste Management Units to be Closed

The Clean Harbors Kansas, LLC facility's existing hazardous waste management units are summarized in Table J.1, Maximum Extent of Operations - Clean Harbors Kansas, LLC - Hazardous Waste Management Units, presented in Appendix J-A, Tables. Specific descriptions of container management units, tank systems, and miscellaneous units are located in Sections D (Container Management), E (Tank Management), and M (Miscellaneous Units), respectively.

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J-3 Closure Performance Standard

Clean Harbors Kansas, LLC will close each hazardous waste management unit and/or the entire facility in a manner that minimizes the need for further maintenance, and controls, minimizes, or eliminates (to the extent necessary to protect human health and the environment) post-closure escape of hazardous waste, hazardous constituents, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

Clean Harbors Kansas, LLC will meet this performance standard by removing all hazardous wastes and hazardous waste constituents to acceptable levels (see Section J-4a). All containers, tanks, miscellaneous units, piping, and other ancillary parts to the systems will be closed in one of the following ways:

1. They will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility.
2. They will be decontaminated in accordance with the procedures discussed in Section J-4a and disposed of at a solid waste landfill.

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3. They will be decontaminated sufficiently to be salvaged for future use.
4. They will be transferred for use at another RCRA facility.

All permanent structures (e.g., concrete containment systems) will be closed in one of the following ways.

1. They will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility.
2. They will be decontaminated in accordance with the procedures discussed in Section J-4a and disposed of at a solid waste landfill.
3. They will be decontaminated in accordance with the procedures discussed in Section J-4a and maintained in place for future use.

All analyses performed to verify that closure performance standards are met shall be performed at a laboratory certified by the state of Kansas for the specific analytical procedures used.

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J-3a Establishment of Cleanup Standards

Clean Harbors Kansas, LLC will close the subject Hazardous Waste Management Units (HWMUs) by removal of the waste so that there will not be any need for post-closure monitoring and maintenance of the units.

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Since all units at Clean Harbors Kansas, LLC have secondary containment, any leaks, spills, drips, etc. will have been contained, removed, and cleaned up in accordance with the operating conditions of this permit. Therefore, the surrounding soils and/or groundwater should not have been contaminated by regulated units during facility operations under this permit application.

The property on which the Clean Harbors Kansas, LLC facility is located is included within the boundaries of the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" Site in Wichita, Kansas. The 29th and Mead Superfund Site is listed on the National Priorities List (NPL). Reid Supply Company has been named a Potentially Responsible Party (PRP) in the 29th and Mead Superfund Site. In 1986, Conservation Services, Inc. purchased certain assets, including the permit (operating under EPA I.D. #KSD007246846), from Reid Supply Co., Inc. Subsequently, Hydrocarbon Recyclers, Inc. of Wichita acquired the capital stock of Conservation Services, Inc. in 1987. The Reid Supply Company property functioned as a storage, recycling, and collection point for hazardous waste material and as a bulk chemical repackaging and distribution center since the 1970s.¹

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The 29th and Mead Superfund Site, located in north Wichita, Kansas, is bounded by 37th Street on the north, I-135 on the east, 17th Street on the south, and Broadway Street on the west.

Located in a heavy industrial area, the Site has evolved over a 95 year time span, approximately. Current industry includes, but is not limited to, chemical supply companies, grain elevators, railroad facilities, metal fabricating companies, foundries, refineries, meat processing companies, recyclers/salvage facilities, roofing companies, concrete companies, food processing companies, and gasoline retailers.¹

Past investigations, including one performed by Groundwater Technology, Inc.¹, have indicated the presence of soil and groundwater contamination. The investigation and remediation plan for the 29th and Mead Superfund Site is in preparation by U.S. EPA Region VII contractors. Due to this investigation into potential contamination of the area, the Clean Harbors Kansas, LLC facility currently does not plan to conduct independent soil or groundwater studies during closure. At final closure, LESW will use the Superfund site cleanup levels as the target levels for closure performance

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standard for soils and groundwater (as appropriate) at the site.

In the event that the Superfund cleanup levels have not been determined at the time of final facility closure, a health risk assessment will be performed and used to set the target closure levels for contaminants in soils and groundwater at the site. The health risk assessment and the recommended target levels will be provided to the appropriate regulatory agency for review and approval prior to implementation. During partial closure, soils will be removed or decontaminated if contaminant levels exceed background levels, as determined using the procedures in Section J-4. Subsequent removal of soils from the same area may occur at final closure, depending upon the target levels defined as discussed in the preceding paragraph.

Clean Harbors Kansas, LLC may amend this closure plan in the future in accordance with 40 CFR 270.42.

Because the scope and extent of future site remediation is unknown, this closure plan will address only potential contamination which resulted from hazardous waste management at Clean Harbors Kansas, LLC. Consequently, all areas where evidence of visible contamination exists and areas beneath secondary containment will be evaluated and closed in accordance with J-4a of this closure plan.

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During facility operations under this permit application, hazardous waste management areas are covered and have secondary containment which includes diking. These controls minimize precipitation run-on and run-off and will subsequently be maintained during closure. These structures will not be removed until after all associated hazardous waste management units are decontaminated; or, if demolition is required, other practical methods will be implemented to control run-on and run-off.

Because the Clean Harbors Kansas, LLC facility does not contain waste piles or surface impoundments, and the facility is not a disposal facility, other

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activities such as groundwater monitoring and leachate collection
are not applicable as part of closure.

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J-4 Partial Closure and Final Closure Activities

Partial facility closure (i.e., closure of individual hazardous waste management units) may be necessary during the active life of the facility. If partial closure is necessary, the individual hazardous waste management unit would be closed in accordance with Section J-9 of this closure plan. Currently, however, LESW plans to close all existing hazardous waste management units during the final facility closure. Clean Harbors Kansas, LLC will close the facility in accordance with the following procedures.

1. Clean Harbors Kansas, LLC will notify the Kansas Department of Health and Environment (KDHE) or the United States Environmental Protection Agency (USEPA), Region 7, Administrator at least 45 days before Clean Harbors Kansas, LLC intends to begin final closure (within 30 days after receiving the known final volume of hazardous waste into a hazardous waste management unit).
2. If modifications to this closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other

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authorized agencies has been received.

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3. Within 90 days after receiving the final volume of hazardous wastes at a hazardous waste management unit or the facility, LESW will either treat or remove from the unit or facility all hazardous wastes in accordance with this closure plan, unless an extension has been requested and approved in accordance with 40 CFR 264.113(a).
4. Clean Harbors Kansas, LLC will complete final closure activities within 180 days after receiving either the final volume of hazardous wastes or final closure plan approval from the agency (whichever is later), unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).
5. Clean Harbors Kansas, LLC will close the facility in accordance with the schedule discussed in Section J-7 and outlined in Table J.3, Closure Activity Schedule - Final Facility Closure, of this closure plan.
6. The container management units will be closed in accordance with Section J-9a of this closure plan. The tank systems will be closed in accordance with Section J-9b of this plan. All miscellaneous units will be closed in accordance with Section J-9c of this plan.

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7. All contaminated equipment and structures will be either properly disposed of as hazardous waste or decontaminated in accordance with Section J-4a of this closure plan. After decontamination, equipment (such as hand tools, forklifts, and conveyers) and structures may be salvaged for future use.
8. Clean Harbors Kansas, LLC will visually inspect the surface soils at the facility. In accordance with Section J-4a of this closure plan, any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper disposal. The target levels for soil contaminants at partial closure will be determined by comparison to local background levels. For final closure, target levels for closure will be determined by comparison to Superfund cleanup levels or, if necessary, levels set using a site-specific health risk assessment.
9. All wastes generated from closure activities will be handled in accordance with Section J-4b of this closure plan.
10. The Clean Harbors Kansas, LLC facility does not contain disposal units. All tank systems have secondary containment meeting the requirements of 40 CFR 264.193 (b) through (f).

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Also, all hazardous

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wastes and hazardous waste constituents will be removed from the facility during final closure and all structures will be decontaminated in accordance with this closure plan.

Therefore, the facility is subject to neither the post-

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closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

11. Within 60 days of final closure completion, Clean Harbors Kansas, LLC will submit, either by hand delivery or by registered mail, a certification of closure to KDHE or to the Regional Administrator of the USEPA, Region 7. The certification will be signed by LESW, as the owner/operator of the facility, and by an independent registered professional engineer attesting that the units were closed in accordance with this closure plan.

J-4a Disposal or Decontamination of Equipment, Structures and Soils

During the partial and final closure periods, all contaminated equipment and structures will be either properly disposed of or decontaminated.

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J-4a(1) Soils

As discussed in Section J-3a, Clean Harbors Kansas, LLC does not currently plan to perform extensive soil or groundwater studies for the purpose of closure because this would duplicate the pending Superfund investigation into potential historical contamination of the site and the surrounding area. The extent of remedial action which will be required at the 29th and Mead Superfund Site has not been determined.

During closure operations, Clean Harbors Kansas, LLC will inspect the immediate area around all hazardous waste management units for indications of contamination. Any visible evidence of contamination (e.g., staining, discoloration) will be evaluated for hazardous constituents (performing limited soil sampling and analysis if applicable) and, if contamination is present, the soils will be removed for proper disposal. In addition, the concrete base of the containment system will be inspected for evidence of damage (e.g., cracking, pitting, etc.). If this damage may have resulted in migration of hazardous constituents from the containment system, further investigations will be performed to determine the presence and extent of contamination, if any.

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Visibly contaminated soil, either adjacent to or under containment systems of waste management units, will be removed. Excavated soil and debris will be analyzed according to standard laboratory procedures for the presence of hazardous constituents and managed in accordance with applicable regulations. Procedures for sampling and analysis of soil remaining after excavation (if applicable) are listed below.

1. For partial closure involving possible soil contamination, six representative background samples will be taken on-site but away from the visible contamination at depths of 0-18 inches and 18-36 inches at each of three sample points and analyzed using either USEPA SW-846 8260 and/or SW-846 8015, modified, or another equivalent, acceptable method. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for approval prior to use. Background samples will be taken from the same soil type and at the same soil horizon as non-background samples. The facility "background" will be considered the mean plus two standard deviations.

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2. All soil analysis procedures will be conducted in accordance with either USEPA method SW-846 numbers 6010, 7471, and/or 8260, modified (as appropriate) or other equivalent procedures. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for approval prior to use.
3. Proper QA/QC procedures will be followed to control the potential loss of VOCs during sampling and transport.
4. All visibly contaminated soil will be removed.
5. All visibly contaminated soil which has been removed will be handled in accordance with Section J-4b of this closure plan.
6. After removal of the contaminated soil, three samples will be taken from inside the area of removed soil at depths of 0-6 inches, 12-18 inches, and 24-30 inches. The samples will be analyzed using USEPA SW-846 8260 and SW-846 8015, modified, and in accordance with Step 2 above.

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7. For partial closures, soil will be considered clean for closure when results of sample analyses are either at or below on-site background levels as determined under Item 1 of this list. For final closure, soil will be considered clean for closure when results of sample analyses are at or below health risk based

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levels determined in conjunction with the Superfund process, or alternate standards determined using a health risk assessment and approved by KDHE.

8. If the soil does not meet the conditions specified in Step 7 above, soil will be removed to six inches below the lowest contaminated sample detected. If the 24-30 inch soil horizon shows contamination as defined in Step 7, Steps 6 through 8 will be repeated.

During final closure operations, the soil beneath containment systems of all hazardous waste management units will be closed as follows.

1. A visual inspection for evidence of release (i.e., staining or discoloration of soil, or damage to containment system) will be performed to determine selected sites for soil or concrete sampling. At the time of closure, if cracks or gaps which may have resulted in contaminant migration are observed in the hazardous waste management unit, a

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sample site will be located on or near the crack location. Concrete corings will not be taken in any unit for which the facility can document that there has not been a major release during the operating period. Concrete corings will be taken in Building I, and in units in which major releases have been documented during the operating period.

2. Collect samples at three depths, 0-6 inches, 12-18 inches, and 24-30 inches, at each sample point and analyze using either USEPA SW-846 8260 and/or SW-846 8015, modified, or another

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acceptable method. The samples from each horizon will be composited. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for their approval prior to use.

3. Collect background samples in accordance with Item 1 on page 14 of this Closure Plan, unless background levels have already been determined for the site.
4. Proper QA/QC procedures will be followed to control the potential loss of VOCs during sampling and transport.
5. Soil analysis procedures will be according to either USEPA method SW-846 numbers 6010, 7471 and/or 8260, modified (as appropriate) or other acceptable method. For all methods of record, deviations from SW-846 methods have either been included in the Waste Analysis Plan (Section C) for agency approval at this time, or will be submitted to the agency for their approval prior to use.

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6. For partial closures, soil will be considered clean for closure when results of sample analysis are at or below on-site background levels as determined under Item 1 on page 13. For final closure, soil will be considered clean for closure when results of sample analyses are at or below health risk based levels determined in conjunction with the Superfund process, or alternate standards determined using a health risk assessment and approved by KDHE.

7. If large areas of soil contamination, in excess of closure standards, are identified, a project specific assessment and cleanup plan will be prepared and submitted to the KDHE for approval and subsequent implementation. This will be done in accordance with the permit modification procedures of 40 CFR 270.42.

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J-4a(2) Hazardous Waste Management Units (HWMUs)

Decontamination procedures for hazardous waste management units (i.e., tank systems, container storage units, and miscellaneous units) are discussed in the following paragraphs. Specific procedures are outlined based on configuration of the equipment.

"Exposed surfaces" are external surfaces and those internal surfaces which are readily scraped, sandblasted, brushed, or swept (i.e., accessible to standard techniques for removal of residual materials).

J-4a(2) (a) HWMUs with no internal or complicated external parts

All tank systems, container management units, and miscellaneous units and their associated secondary containment system components and ancillary equipment will be decontaminated as follows (unless the unit has internal and/or complicated external parts exposed to waste).

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second

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wash/rinse will be performed using clean water with cleaning additives. Accumulated liquids from the two first washes will be collected and handled in accordance with Section J-4b of this closure plan. The third wash/rinse will be performed with clean (potable) water.

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2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visible residue. If necessary, the facility will repeat all, or part, of the above procedures.
3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed for total concentrations of all constituents with Maximum Concentration Limits (MCL) defined in 40 CFR 264.94.
4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.
5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit for further management and/or disposal at an off-site permitted TSDF as a hazardous waste. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

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J-4a(2)(b) HWMUs with internal or complicated external parts

Any tank systems or miscellaneous units with external or complicated internal parts exposed to wastes (such as the Shredding Unit) will be decontaminated as follows.

1. Exposed surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.
2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary the facility will repeat all, or part, of the above procedures.

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3. If visible contamination remains, go to Step 5 below. If no

visible contamination remains, the facility will take a representative sample of the rinse water from the final rinse of the hazardous waste management unit. These samples will be analyzed according to the TCLP (40 CFR 261.24 as amended June 29, 1990).

4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the values/levels listed in Table J.2, and when no visible residues remain on the unit.

5. If, after performing the above rinsing procedures, the equipment can not be decontaminated, the equipment will be transported by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

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J-4a(3) Closure of Miscellaneous Handling Equipment

A wide variety of equipment on site may be used for hazardous waste management. Equipment which has been in contact with hazardous waste will be decontaminated during closure activities.

Equipment which may require decontamination during closure includes (but is not limited to) industrial trucks, drum dollies, handcarts, conveyers, augers, and other material transfer equipment, as well as hand tools such as shovels, brushes, scrapers, etc. During final facility closure, this equipment will be closed in one of the following ways:

For closure of small equipment (such as hand tools), if visible contamination exists, the equipment will be dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility,

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For closure of all equipment (including hand tools), if visible contamination exists, equipment will be decontaminated and disposed of at a solid waste landfill. If evidence of contamination exists after decontamination, the equipment will be transported by a permitted/licensed hauler to a permitted RCRA/HSWA off-site TSDF for further treatment or disposal, or

For closure of all equipment (including hand tools), if visible contamination exists, equipment will be decontaminated sufficiently to be salvaged for future use and potentially transferred for use at another RCRA facility.

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J-4a(3)(a) Decontamination of small miscellaneous handling
equipment

All hand tools and equipment without internal or complicated external parts will be decontaminated in accordance with the following procedures.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be rinsed with a high-pressure stream of steam or water, possibly with suitable detergents or other cleaning additives, until either all visible contamination is removed, or until further removal is not feasible. All accumulated solids and liquids will be handled in accordance with section J-4b of this closure plan.
2. The equipment will be visually inspected for evidence of visible contamination.
3. The equipment will be considered decontaminated when no visible evidence of contamination exists.

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4. If visible evidence of contamination remains and cannot be removed, the equipment will be disposed of as a hazardous waste.

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J-4a(3)(b) Decontamination of large miscellaneous handling
equipment with no internal or complicated external
parts

All large equipment with no internal or complicated external parts will be decontaminated as follows.

1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.
2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary, the facility will repeat all, or part, of the above procedures.

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3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed for total concentrations of MCL constituents.
4. Except in cases where the Hazardous Waste Debris Rule applies, the equipment will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.
5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit and transport it by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal.

J-4a(3)(c)

Decontamination of large miscellaneous handling equipment with internal or complicated external parts

All large equipment with internal and/or complicated external parts that contact waste will be decontaminated in accordance with the following procedures.

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1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated solids and liquids from the two first washes will be handled in accordance with section J.4b of this closure plan. The third wash/rinse will be performed with clean water.
2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visual residue. If necessary the facility will repeat all, or part, of the above procedures.
3. If visible contamination remains, go to Step 5 below. If no visible contamination remains, the facility will take a representative sample of the rinse water from the final rinse of the hazardous waste management unit. These samples will be analyzed for total concentrations of MCL constituents.

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4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the MCLs defined in 40 CFR 264.94, and when no visible residues remain on the unit.
5. If after performing the above rinsing procedures, the equipment can not be decontaminated, the equipment will be transported by a licensed/permitted hauler to an off-site, permitted TSDF for further treatment or disposal. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

J-4b Hazardous Waste Handling Procedures

All contaminated solids, liquids, sludges, soils, and debris generated by the closure process will be managed in accordance with applicable regulations as site generated solid waste (i.e., Clean Harbors Kansas, LLC is the generator). Generated wastes meeting the definition of "hazardous waste" under 40 CFR 261.3 will be handled in the manner discussed below.

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Site-generated hazardous wastes may be stored on-site in containers, existing tanks, or temporary portable tanks prior to treatment or removal from the facility. The wastes may be treated on-site in accordance with the facility's RCRA/HSWA permit. A temporary storage area may be developed for storage of these generated wastes, and if so, wastes will be stored in this area for less than ninety days. These wastes will then be transported to a permitted off-site Treatment, Storage, or Disposal Facility (TSDF) by a permitted hazardous waste hauler for appropriate disposal or further treatment (e.g. landfill, deep-well injection, incineration, cement kiln, recycling facility).

J-5 Maximum Extent of Operations

Table J.1 lists all existing and proposed hazardous waste management units at the Clean Harbors Kansas, LLC facility. This table represents the maximum extent of operations which are currently planned to exist at this facility.

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J-6 Maximum Waste Inventory

The maximum inventory of wastes in storage exists when all hazardous waste management units contain their maximum permitted capacity of waste. The facility's potential maximum waste inventory is 463,477 gallons.^a

^a The maximum waste inventory was calculated by adding S01 (storage in containers) and S02 (storage in tanks) in the Part A permit application.

$$325,490 \text{ gallons (S01)} + 137,987 \text{ gallons (S02)} = 463,477 \text{ gallons}$$

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J-7 Schedule for Final Closure

Table J.3, Closure Activity Schedule - Final Facility Closure outlines the anticipated schedule for closing the Clean Harbors Kansas, LLC facility. The schedule assumes that all hazardous waste management units identified in this plan (See Table J.1) will be closed.

During final closure, hazardous waste management units may be closed simultaneously or sequentially. Also, a temporary storage area may be developed for storage of wastes which are generated on-site during closure activities, and if so, wastes will be stored in this area for less than ninety days in appropriate containers or temporary tanks.

J-7a Expected Year of Final Closure

Clean Harbors Kansas, LLC does not expect to close the facility prior to the permit expiration (i.e., ten years after the effective date of the permit). Since the facility does not consist of disposal units such as landfills or surface impoundments, capacity restraints (such as landfill capacity) do not exist to force facility

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closure. Therefore, Clean Harbors Kansas, LLC will not estimate the year of final closure [per 40 CFR 264.112(b)(7)].

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J-8 Closure Plan Amendment

Clean Harbors Kansas, LLC maintains a copy of the closure plan at the facility. Clean Harbors Kansas, LLC will submit a written request for approval to change the closure plan, in accordance with 40 CFR 264.112(c) and 40 CFR 270.42, whenever one of the following occurs.

1. Changes in operating plans or facility design affect the closure plan.
2. Change in the estimated year of final closure (see section J-7a).
3. In conducting partial or final closure activities, unexpected events occur which affect the closure plan.

This notification will include a copy of the amended closure plan for review or approval by KDHE. It will be submitted at least 60 days prior to the proposed change in facility design or operation, or no later than sixty days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure

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period, Clean Harbors Kansas, LLC will submit the notification or request no later than 30 days after the unexpected event's occurrence.

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J-9 Individual Unit Closures

This section details the closure procedures of each individual hazardous waste management unit. During final facility closure and partial facility closure, each hazardous waste management unit will be closed in accordance with this section.

J-9a Container Management Unit (CMU) Closure

Partial facility closure (closure of an individual hazardous waste management unit), may be necessary during the active life of the facility. If a container management unit must be closed during the active life of the facility, it will be closed in accordance with this section (J-9a). At final closure of a container management unit, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

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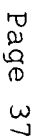
J-9a(1) Process and Unit Description

The container management units at the Clean Harbors Kansas, LLC facility are used for storing and staging containers of hazardous and non-hazardous wastes. The container management units may also be used for the treatment of hazardous waste in containers.

The wastes managed in these areas include liquids, sludges, and solids and are managed in containers of varying sizes. The LESW facility manages containerized waste in seven container management buildings, each roofed and constructed with concrete diking to minimize run-on and run-off. These buildings are divided into independently contained sub-areas called Container Management Unit (CMU)s. The maximum total permitted storage capacity of container management units on site is approximately 325,490 gallons. Figure J.1, Material Containment Areas (Drawing 50-01-10-002, Material Containment Areas presented in Section Y) depicts the location of each CMU at the facility; Section D of this permit application describes each CMU in more detail.

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Figures 1.1. Material Contentment Areas



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J-9a(2) Unit Closure Procedures

For the purposes of this closure plan, each container management unit includes the following structures/equipment:

Containers, drums, pallets, marino bags, etc., and associated hazardous wastes, waste residues and constituents.

All associated secondary containment structures (concrete pads, curbs, ramps, etc.).

Associated equipment (e.g., conveyors, etc.).

Buildings which enclose CMUs and which do not come into direct contact with hazardous waste or hazardous waste containers are not part of the container management unit. Therefore, the buildings associated with CMUs, including floors which are not part of the container management unit, will not be subject to the decontamination procedures of this closure plan and may be left in place. However, these walls and floors will be visually

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inspected and, if evidence of contamination exists, these structures will be cleaned.

Clean Harbors Kansas, LLC will close all CMUs at the facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.
2. Clean Harbors Kansas, LLC will close the CMU(s) in accordance with the schedule outlined in Table J.4, Closure Activity Schedule - Container Management Unit (CMU) and discussed in Section J-9a(3) of this closure plan.
3. Within ninety days after receiving the final volume of hazardous wastes at the CMU(s), Clean Harbors Kansas, LLC will remove all waste inventory and portable equipment from the area unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit or transported to a permitted TSDF for off-site management.

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Clean Harbors Kansas, LLC will attempt to empty all drums to the extent described by 40 CFR 261.7(b) to satisfy the requirements for the exemption as defined by 40 CFR 261.7(a)(1). The successfully emptied drums will be transported to an off-site industrial waste disposal facility or a permitted RCRA/HSWA TSDF for disposal. If a container cannot be emptied to meet the definition in 40 CFR 261.7(b), then the container will be transported by a licensed hazardous waste hauler to a permitted off-site RCRA/HSWA TSDF for management.

4. All contaminated equipment, structures, and secondary containment systems will be:
 - A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or
 - B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or
 - C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.

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D. Successfully decontaminated equipment may be transferred to another TSDF for use.

5. Clean Harbors Kansas, LLC will visually inspect the surface soils around the CMU(s). Any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper management in accordance with Section J-4a of this closure plan.

At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.
7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes or closure plan approval by the agency, unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).

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8. The CMUs are not disposal units. Also, all hazardous wastes and hazardous waste constituents will be removed from the CMU during closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the CMUs are not subject to the post-closure care requirements of 40 CFR 264.116 through 264.120.

J-9a(3) Unit Closure Schedule

Table J.4 outlines the anticipated schedule for the individual closure of a container management unit at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed simultaneously and in accordance with the schedule presented in Table J.3.

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J-9b Tank System Closure

Partial facility closure (closure of an individual hazardous waste management unit) may be necessary during the active life of the facility. If a tank or tank system must be closed during the active life of the facility, it will be closed in accordance with this section (J-9b). At closure of a tank or tank system, all hazardous waste and hazardous waste residues will be removed from the tank/tank system. Tanks, ancillary equipment, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

J-9b(1) Process and Unit Description

Tank systems at the Clean Harbors Kansas, LLC facility include storage/treatment tanks; the maximum permitted storage capacity of tanks on site is 137,987 gallons. The storage/treatment tanks have several uses at the Clean Harbors Kansas, LLC facility, some of which are discussed below.

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Solvent and solid waste streams are blended, accumulated, and stored in tanks prior to being transported to an off-site cement kiln to be burned as an alternative fuel.

Other wastes are received from generators either in drums or bulk and are transferred to tanks to await transportation to an off-site reclamation facility, incinerator, deep-well injection facility, landfill or other permitted TSDF.

Finally, the Clean Harbors Kansas, LLC facility manages solvent laden cartridges (e.g., dry cleaning cartridges). Cartridges are shredded and/or dried to recover solvent or other material for energy recovery and/or reuse, or they may be sent to an off-site TSDF without on-site processing. Recovered vapors are condensed and accumulated in a vessel which is purged after each drier batch. The solvent and water are separated in a phase separation tank, and then stored separately in designated tanks prior to shipment off-site to a TSDF for further reclamation, for disposal, or for other appropriate management.

The tanks used at Clean Harbors Kansas, LLC vary in size. All tanks utilized for

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hazardous waste management are equipped with a manual gaging port

and high level alarms to minimize the potential for overflow.

All hazardous waste management tanks operating under this permit

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have secondary containment designed, installed, and operated to prevent migration of wastes or accumulated liquid to the environment. These containment systems, consisting of concrete slabs surrounded by concrete walls or dikes of varying height, enable the detection of and collection of releases and accumulated liquids. The concrete containment liner is also maintained free from cracks and gaps.

These tanks are summarized in Table J.1. In addition, Figure J.2, Tank Locations (Drawing 50-01-03-001, Tank Locations presented in Section Y) shows the location of each tank system at the facility. Section E of this permit application describes the tank systems in more detail. The tank systems are designed, constructed, and operated in accordance with 40 CFR 264.190 through 199.

J-9b(2) Unit Closure Procedures

For the purposes of this closure plan, each tank system includes:

Tanks and associated hazardous wastes, waste residues and constituents;

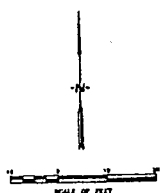
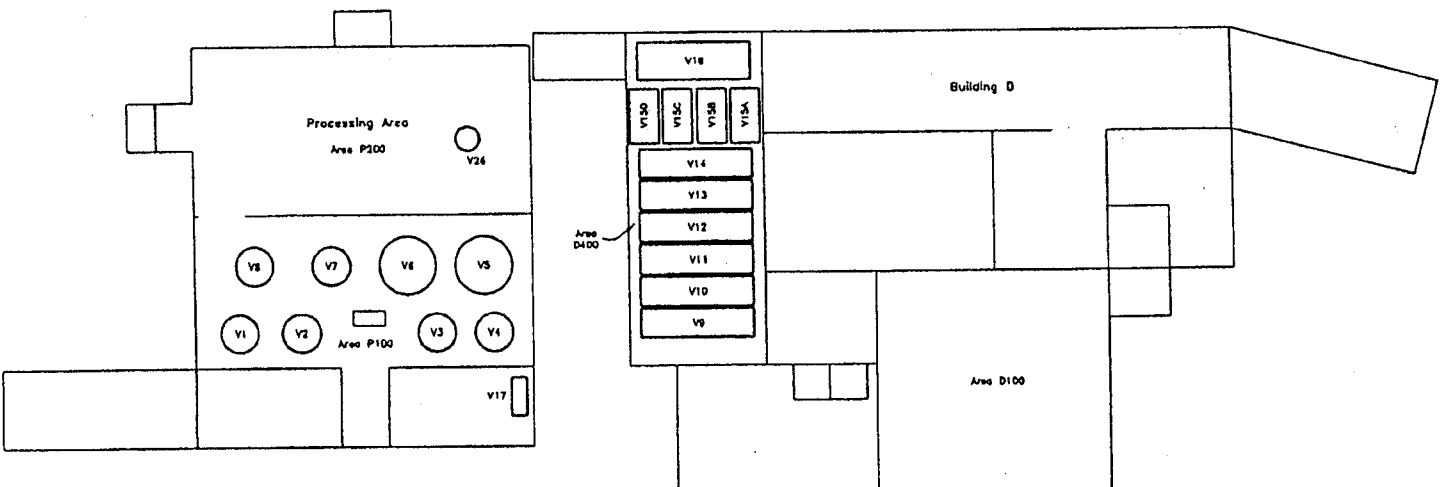
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All ancillary equipment including, but not limited to,
piping, fittings, flanges, valves, and pumps; and

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| | |
|---|------------------|
| HYDROCARBON RECYCLERS, INC. | |
| 2720 N. 10th Street, Suite 100, Overland Park, KS 66204 | |
| Project No. 10-10-00 | Revision No. 001 |
| TANK LOCATIONS | |
| 20-20-10-001 | |

FIGURE 2. TANK LOCATIONS

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All associated secondary containment structures (concrete pads, curbs, ramps, etc.).

The buildings which contain tank systems and which do not come into direct contact with hazardous waste or hazardous waste tank systems are not part of the tank system. Therefore, these buildings associated with the tank systems, including floors which are not part of the tank system, will not be subject to the decontamination procedures of this closure plan and may be left in place. However, these walls and floors will be visually inspected and, if evidence of contamination exists, these structures will be cleaned.

The tank units at the Wichita facility may undergo periodic changes and upgrading in order to accommodate required regulatory and capacity changes and improvements in technology. Also, LESW will replace tanks if they become unfit for use. Since each secondary containment system contains several tanks, the Clean Harbors Kansas, LLC facility could potentially close a single tank unit without closing the associated secondary containment system. However,

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upon final facility closure all tank systems, including secondary containment, will be closed in accordance with this section.

Clean Harbors Kansas, LLC will close all tanks and/or tank systems at the facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.
2. Clean Harbors Kansas, LLC will close the tanks and/or tank systems in accordance with the schedule outlined in Table J.5, Closure Activity Schedule - Tanks and Tank Systems and as discussed in Section J-9b(3) of this closure plan.
3. Within ninety days after receiving the final volume of hazardous wastes into the tank/tank system, Clean Harbors Kansas, LLC will remove all waste inventory from the unit(s) unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit

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or transported to a permitted TSDF for off-site management.

4. All tanks, ancillary equipment, structures, and secondary containment systems (when applicable) will be:
 - A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or
 - B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or
 - C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.
 - D. Successfully decontaminated equipment may be transferred to another TSDF for use.
5. This step applies only when closing an entire tank system, including its secondary containment. If only closing a tank unit, go to Step 6 below. When closing a tank system, LESW will visually inspect the surface soils around the tank system containment area. In accordance with Section J-4a of

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this closure plan, any visible evidence of contamination will be evaluated for hazardous constituents and, if contamination is present, subsequently removed for proper disposal or other appropriate off-site management.

At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.
7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes into the tank unit(s) or closure plan approval from the agency, whichever is later, unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).
8. The tank systems are not disposal units, and they have secondary containment meeting the requirements of 40 CFR 264.193(b) through (f). Also, all hazardous wastes and hazardous waste constituents will be removed from the

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tanks/tank systems during closure and all structures will be decontaminated in accordance with this closure plan.

Therefore, the tank/tank systems are subject to neither the post-closure care requirements of 40 CFR 264.116 through 264.120, nor the contingent post-closure plan requirements of 40 CFR 264.197(c).

J-9b(3) Unit Closure Schedule

Table J.5 outlines the anticipated schedule for the individual closure of a tank/tank system at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed either sequentially or simultaneously and in accordance with the schedule presented in Table J.3.

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J-9c Miscellaneous Unit Closure

Partial facility closure, closure of an individual hazardous waste management unit, may be necessary during the active life of the facility. If a miscellaneous unit must be closed during the active life of the facility, it will be closed in accordance with this section. At closure of a miscellaneous unit, all hazardous waste and, to the extent possible, hazardous waste residues will be removed from the unit. Furthermore, the miscellaneous unit, associated ancillary equipment, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be either decontaminated or removed.

J-9c(1) Process and Unit Description

"Miscellaneous Unit" is defined under 40 CFR 260.10 (as of July 1, 1990) as:

A hazardous waste management unit where hazardous waste is treated, stored, or disposed of, and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR Part 146, or unit eligible for a research, development, and demonstration permit under 40 CFR 270.65.

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The Clean Harbors Kansas, LLC facility has miscellaneous units as defined above. Table J.1 and Figure J.3, Miscellaneous Unit Locations (Drawing 50-57-10-001, Miscellaneous Unit Locations presented in Section Y) identify these units and their location at the Wichita facility. A brief description of each unit follows.

1. Shredder Unit - A toothed wheel shredder which reduces bulk objects into shreds.
2. Granulator Unit - A fixed knife shredder which reduces the size of solid objects.
3. Dispersing Unit - A unit which uses agitation to dissolve viscous liquids and solids removed from containers prior to transferring these materials into tanks or containers.

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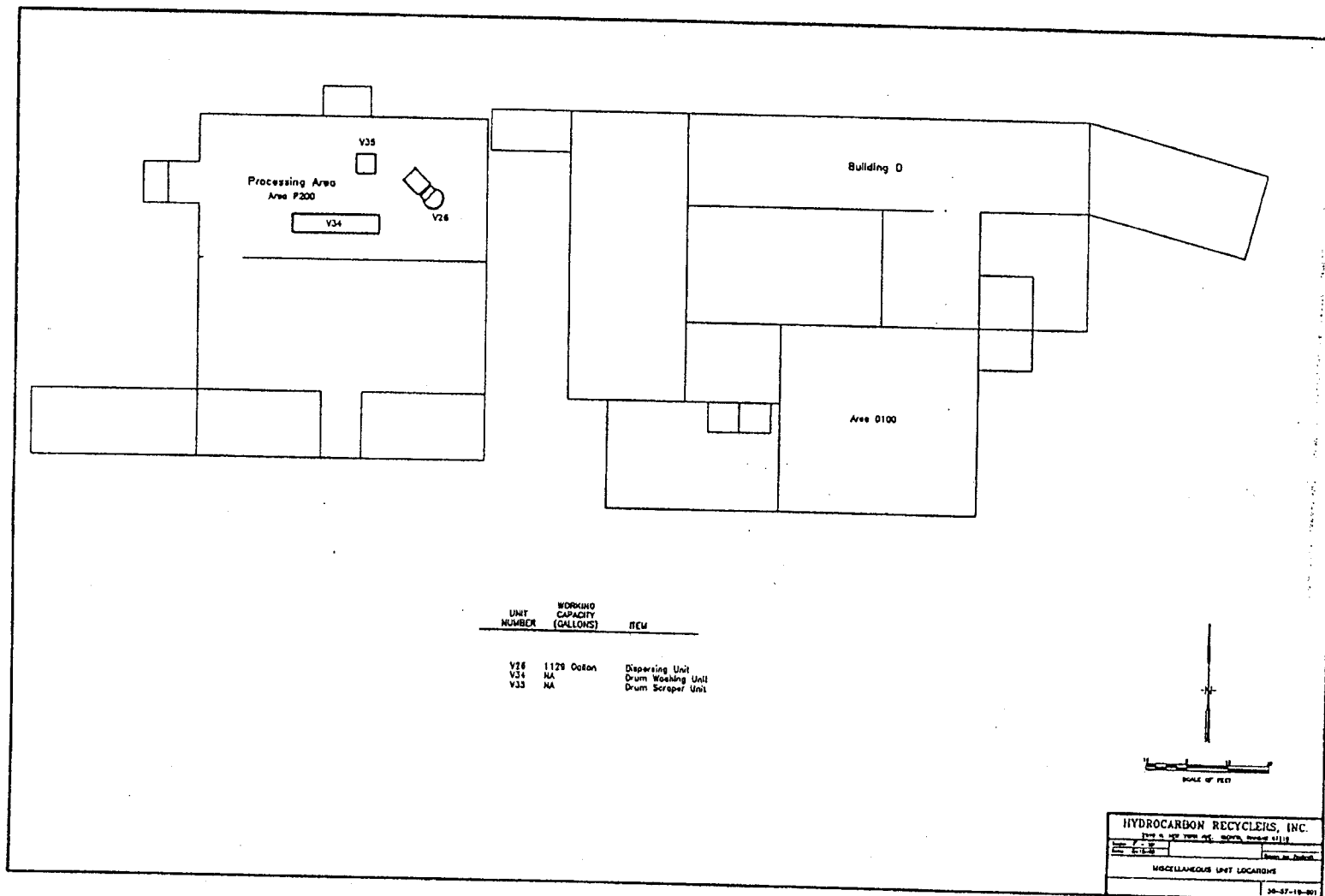


Figure J.3. Miscellaneous Unit Locations

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4. Drum Washing Unit - A unit which mechanically removes waste residue from emptied drums.
5. Drum Scraper Unit - A device which loosens solid and viscous material inside a container so the material may be removed from the container for further management (e.g., treatment, storage).

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J-9c(2) Unit Closure Procedures

For the purposes of this closure plan, each miscellaneous unit includes the following structures/equipment:

- . The unit and associated hazardous wastes, waste residues and constituents;
- . Ancillary equipment including, but not limited to, piping, fittings, flanges, valves, and pumps; and
- . Associated secondary containment structures (concrete pads, curbs, ramps, etc.).

The buildings which contain miscellaneous units and which do not come into direct contact with hazardous waste or the unit are not part of the miscellaneous unit. Therefore, the buildings associated with the miscellaneous unit, including floors which are not part of the miscellaneous unit system, will not be subject to the decontamination procedures of this closure plan

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and may be left in place. However, these walls and floors will be visually inspected and, if evidence of contamination exists, these structures will be cleaned.

The miscellaneous units at the Clean Harbors Kansas, LLC facility may undergo periodic changes, upgrades, or partial closure in order to accommodate required regulatory and capacity changes and improvements in technology. Also, Clean Harbors Kansas, LLC will periodically replace miscellaneous units if they become unfit for use and repair. Since some of the secondary containment systems contain miscellaneous units in addition to tanks and/or CMUs, the facility could potentially close or replace a single miscellaneous unit without closing the associated secondary containment system. However, upon final facility closure all miscellaneous units, including secondary containment, will be closed in accordance with this section.

Clean Harbors Kansas, LLC will close all miscellaneous units at the Wichita facility as follows.

1. If modifications to the closure plan are desired and have not been previously approved in accordance with 40 CFR 270.42 and 264.112, the modified portions of the plan will not be implemented until approval by KDHE or other authorized agencies has been received.

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2. Clean Harbors Kansas, LLC will close the miscellaneous unit(s) in accordance with the schedule outlined in Table J.6, Closure Activity Schedule - Miscellaneous Units and discussed in Section J-9c(3) of this closure plan.
3. Within ninety days after receiving the final volume of hazardous wastes into the miscellaneous unit(s), Clean Harbors Kansas, LLC will remove all waste inventory from the unit(s) unless an extension has been requested and approved in accordance with 40 CFR 264.113(a). All waste inventories will be either treated on-site in accordance with the facility's RCRA/HSWA permit or transported to a permitted TSDF for off-site management.
4. The unit(s), ancillary equipment, structures, and secondary containment systems (when applicable) will be:
 - A. Dismantled and disposed of as hazardous waste at a RCRA/HSWA permitted off-site disposal facility, or
 - B. Decontaminated in accordance with Section J-4a and disposed of at a solid waste landfill, or

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- C. Decontaminated in accordance with Section J-4a and either salvaged for future use or left in place.
 - D. Successfully decontaminated equipment may be transferred to another TSDF for use.
5. This step applies only when closing an entire miscellaneous unit system, including its secondary containment. If only closing a miscellaneous unit, go to Step 6 below. When closing the miscellaneous unit(s) and its associated secondary containment, Clean Harbors Kansas, LLC will visually inspect the surface soils around the unit's containment area. Any visible evidence of contamination will be evaluated for hazardous constituents and (if contamination is present) subsequently removed for proper disposal or other off-site management in accordance with Section J-4a of this closure plan.

At final closure, the soil beneath the secondary containment systems will be closed in accordance with Section J-4a of this closure plan.

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6. All wastes generated on-site from closure activities will be handled in accordance with Section J-4b of this closure plan.
7. Clean Harbors Kansas, LLC will complete closure activities within 180 days after receiving either the final volume of hazardous wastes into the miscellaneous unit(s) or closure plan approval by the agency (whichever is later), unless an extension has been requested and approved in accordance with 40 CFR 264.113(b).
8. The miscellaneous units are not disposal units. Also, all hazardous wastes and hazardous waste constituents will be removed from the miscellaneous units during closure and all structures will be decontaminated in accordance with this closure plan. Therefore, the miscellaneous units are not subject to the post-closure care requirements of 40 CFR 264.116 through 264.120.

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J-9c(3) Unit Closure Schedule

Table J.6 outlines the anticipated schedule for the individual closure of a miscellaneous unit at the Clean Harbors Kansas, LLC facility. During final closure of the facility, all HWMUs may be closed either sequentially or simultaneously and in accordance with the schedule presented in Table J.3.

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J-10 Financial Requirements

Closure costs are estimated in Appendix J-B, Closure Cost Estimate.

Financial requirements for hazardous waste TSDFs are addressed in Section K, Financial Requirements of this document.

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Endnote

Groundwater Technology, Inc., Draft Remedial Investigation Report for the 29th
d RI/FS, August 27, 1991.

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APPENDIX J-A

TABLES

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Appendix J-A - Tables

TABLE J.1

MAXIMUM EXTENT OF OPERATIONS

Clean Harbors Kansas, LLC - HAZARDOUS WASTE MANAGEMENT UNITS

| <u>HWMU^b</u> | <u>UNIT</u> | <u>Wastes Stored/Function</u> |
|-------------------------|-----------------------|--|
| C | CMU C100 ^c | Hazardous waste - Container Management |
| C | CMU C200 | Hazardous waste - Container Management |
| C | CMU C300 | Hazardous waste - Container Management |
| C | CMU C400 | Hazardous waste - Container Management |
| C | CMU C500 | Hazardous waste - Container Management |

^b HWMU - Hazardous Waste Management Unit - All HWMUs at the HRI Wichita facility are either Container Management Areas (C), Tanks/Tank Systems (T), or Miscellaneous Units (M) as defined by 40 CFR 260.10. The unit closure procedures for these units are detailed in Section J-9a, Section J-9b, and Section J-9c respectively.

^c Each section represents an individually contained area (i.e. CMU). See Figure J.1 for CMU locations.

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| | | |
|---|----------|--|
| C | CMU C600 | Hazardous waste - Container Management |
| C | CMU C700 | Hazardous waste - Container Management |
| C | CMU B100 | Hazardous waste - Container Management |
| C | CMU B200 | Hazardous waste - Container Management |
| C | CMU B300 | Hazardous waste - Container Management |

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| <u>HWMU</u> | <u>UNIT</u> | <u>WASTES STORED/FUNCTION</u> |
|-------------|-------------|--|
| C | CMU B400 | Hazardous waste - Container Management |
| C | CMU D100 | Hazardous waste - Container Management |
| C | CMU D200 | Hazardous waste - Container Management |
| C | CMU D300 | Hazardous waste - Container Management |
| C | CMU I100 | Hazardous waste - Container Management |
| C | CMU I200 | Hazardous waste - Container Management |
| C | CMU I300 | Hazardous waste - Container Management |
| C | CMU J100 | Hazardous waste - Container Management |
| C | CMU J200 | Hazardous waste - Container Management |
| C | CMU J300 | Hazardous waste - Container Management |
| C | CMU J400 | Hazardous waste - Container Management |
| C | CMU J500 | Hazardous waste - Container Management |
| C | CMU J600 | Hazardous waste - Container Management |
| C | CMU J700 | Hazardous waste - Container Management |
| C | CMU L100 | Hazardous waste - Container Management |
| C | CMU P100 | Hazardous waste - Container Management |
| C | CMU P200 | Hazardous waste - Container Management |
| T | V-1 | Hazardous Waste Liquid |
| T | V-2 | Hazardous Waste Liquid |
| T | V-3 | Hazardous Waste Liquid |
| T | V-4 | Hazardous Waste Liquid |

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Appendix J-A - Tables

| <u>HWMU</u> | <u>UNIT</u> | <u>WASTES STORED/FUNCTION</u> |
|-------------|-------------|-------------------------------|
| T | V-5 | Hazardous Waste Liquid |
| T | V-6 | Hazardous Waste Liquid |
| T | V-7 | Hazardous Waste Liquid |
| T | V-8 | Hazardous Waste Liquid |
| T | V-9 | Hazardous Waste Liquid |
| T | V-10 | Hazardous Waste Liquid |
| T | V-11 | Hazardous Waste Liquid |
| T | V-12 | Hazardous Waste Liquid |
| T | V-13 | Hazardous Waste Liquid |
| T | V-14 | Hazardous Waste Liquid |
| T | V-15A | Hazardous Waste Liquid |
| T | V-15B | Hazardous Waste Liquid |
| T | V-15C | Hazardous Waste Liquid |
| T | V-15D | Hazardous Waste Liquid |
| T | V-16 | Hazardous Waste Liquid |
| T | V-17 | Hazardous Waste Liquid |
| M | V-20 | Shredder Unit |
| M | V-21 | Granulator Unit |
| M/T | V-26 | Dispersing Unit |

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| <u>HWMU</u> | <u>UNIT</u> | <u>WASTES STORED/FUNCTION</u> |
|-------------|-------------|-------------------------------|
| M | V-34 | Drum Washing Unit |
| M | V-35 | Drum Scraping Unit |
| C | All CMUs | Treatment in Containers |

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TABLE J.2 HAS BEEN REMOVED FROM THE CLOSURE PLAN

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Appendix J-A - Tables

TABLE J.3

CLOSURE ACTIVITY SCHEDULE - FINAL FACILITY CLOSURE

| <u>Calendar Days Lapsed</u> | <u>Closure Activity</u> |
|-----------------------------|--|
| -45 | Notification to KDHE or the EPA Region 7 Administrator. |
| 0 | Receipt of known final volume of hazardous waste or receipt of final closure plan approval from agency (whichever is later). Begin work-force mobilization. Begin treatment and removal of tank waste inventory. Begin treatment and removal of container waste inventory. |
| 90 | Complete treatment and removal of all hazardous waste inventories. |
| 120 | Complete decontamination of tanks, container management units and miscellaneous units. |
| 150 | Complete dismantling/removal of all generated wastes, temporary storage units, and decontaminated tanks, equipment, and structures (if removal is necessary). Visually inspect surface soils for contamination and begin remediation procedures if necessary. |
| 180 | Complete final closure activities. |
| 200 | Inspection of facility by a Professional Engineer. |

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Submit a certification of closure to KDHE or the EPA
Region 7 Administrator.

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TABLE J.4

CLOSURE ACTIVITY SCHEDULE - CONTAINER MANAGEMENT UNIT

| <u>Calendar Days Lapsed</u> | <u>Closure Activity</u> |
|-----------------------------|---|
| 0 | Receipt of known final volume of hazardous waste into the container management unit or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization. Begin treatment and removal of waste inventory. |
| 90 | Complete treatment and removal of all hazardous waste inventories. |
| 120 | Complete emptying all drums and removal of drums from facility. |
| 150 | Complete decontamination of secondary containment structures and hazardous waste handling equipment. Visually inspect surface soils for contamination and begin remediation procedures if necessary. |
| 180 | Complete final closure activities. |

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Appendix J-A - Tables

TABLE J.5

CLOSURE ACTIVITY SCHEDULE - TANKS AND TANK SYSTEMS

| <u>Calendar Days Lapsed</u> | <u>Closure Activity</u> |
|-----------------------------|---|
| 0 | Receipt of known final volume of hazardous waste or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization. Begin treatment and removal of tank waste inventory. |
| 90 | Complete treatment and removal of all hazardous waste inventories. |
| 120 | Complete decontamination of tanks, ancillary equipment, and secondary containment systems (when applicable). |
| 150 | Complete dismantling/removal of decontaminated tanks, equipment, and secondary containment structures (when removal is necessary). Visually inspect surface soils for contamination and begin remediation procedures if necessary. |
| 180 | Complete final closure activities. |

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TABLE J.6

CLOSURE ACTIVITY SCHEDULE - MISCELLANEOUS UNITS

| <u>Calendar Days Lapsed</u> | <u>Closure Activity</u> |
|-----------------------------|---|
| 0 | Receipt of known final volume of hazardous waste or receipt of closure plan approval from agency (whichever is later). Begin work-force mobilization. |
| 120 | Complete decontamination of miscellaneous unit(s), ancillary equipment, and secondary containment systems (when applicable). |
| 150 | Complete dismantling/removal of decontaminated miscellaneous unit(s), equipment, and secondary containment structures (when removal is necessary). Visually inspect surface soils for contamination and begin remediation procedures if necessary. |
| 180 | Complete final closure activities. |

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Appendix J-B - Closure Cost Estimate

APPENDIX J-B

CLOSURE COST ESTIMATE

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Appendix J-B - Closure Cost Estimate

Summary - Closure Cost Estimate
Clean Harbors Kansas, LLC
Wichita, Kansas

The following table is a summary of the cost for closing the Clean Harbors Kansas, LLC facility. The figures for closing the facility are set forth assuming the plant has the maximum storage of hazardous waste and that tanks V-29, V-30, V-31, and V-32 are not yet closed. The Closure Cost Estimate has been prepared in accordance with 40 CFR 264.142 (Cost Estimate For Closure). Cost estimate calculations are provided in the seven sections attached.

In the first section, the cost for transporting and disposing of the stored waste is calculated. The second section calculates the cost of evaluating and decontaminating soils and concrete. The third section estimates the cost of decontaminating the existing hazardous waste management equipment in the plant. Transportation and disposal of the residues collected are calculated in the next three sections. An independent registered professional engineer's cost is figured into the last section, as required in the Federal Register. Section VII calculates the contingency required by 40 CFR 264.142.

| Cost | Section |
|----------------|---|
| \$828,290.77 | Waste Disposal of Maximum Inventory |
| \$145,430.25 | Assessment of Soil and Concrete Decontamination |
| \$19,851.75 | Equipment Decontamination |
| \$25,379.26 | Management of Aqueous Decontamination Residue |
| \$1,562.19 | Management of Kiln Fuel Decontamination Residue |
| \$1,350.58 | Management of Incinerable Decontamination Residue |
| \$3,640.00 | Closure Certification |
| \$1,025,504.80 | Subtotal |
| \$153,825.72 | Contingency 15% |
| \$1,179,330.52 | Total Closure Cost Estimate |

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I. WASTE DISPOSAL OF MAXIMUM INVENTORY

ASSUMPTIONS

55 GALLONS/DRUM
80 DRUMS/LOAD
8000 GALLONS/TANKER
\$20.00 /HOUR LAB LABOR

\$8.85 /HOUR LABOR
1,100 GALLONS/HOUR PUMPING
75 DRUMS/HOUR LOADING
\$3.50 /MILE TRANSPORTATION

STORAGE SUMMARY

| VESSEL | CAPACITY |
|--------|----------|
| V-1 | 7,181 |
| V-2 | 7,084 |
| V-3 | 7,181 |
| V-4 | 7,181 |
| V-5 | 20,895 |
| V-6 | 20,895 |
| V-7 | 7,181 |
| V-8 | 7,181 |
| V-9 | 5,078 |
| V-10 | 5,078 |
| V-11 | 5,078 |
| V-12 | 5,078 |
| V-13 | 5,078 |
| V-14 | 5,078 |
| V-15A | 2,858 |
| V-15B | 2,858 |
| V-15C | 2,858 |
| V-15D | 2,858 |
| V-16 | 9,028 |
| V-17 | 522 |
| V-18 | 489 |
| V-28 | 1,128 |
| V-29 | 80 |
| V-30 | 80 |
| V-31 | 115 |
| V-32 | 115 |
| TOTAL | 137,481 |

| STORAGE BUILDING | STORAGE AREA (SQ.FT.) | STORAGE CAPACITY (GAL) | DRUM EQUIVALENTS (55 GAL) |
|------------------|--------------------------|---------------------------|------------------------------|
| BUILDING D | 13,803 | 48,840 | 848 |
| PROCESSING AREA | 8,278 | 8,900 | 180 |
| BUILDING C | 13,520 | 89,110 | 1,602 |
| DRUM DOCK | 2,880 | 14,980 | 272 |
| BUILDING B | 7,304 | 55,000 | 1,000 |
| BUILDING I | 5,282 | 50,800 | 920 |
| BUILDING J | 6,318 | 49,280 | 898 |
| TOTAL | 55,175 | 325,480 | 5,818 |

INVENTORY REMOVAL

CONTAINER INVENTORY

| DISPOSAL METHOD | PERCENTAGES | DRUMS | UNIT COST | DISPOSAL LOCATION | MILEAGE | DISPOSAL COST |
|------------------|-------------|-------|----------------|-------------------|---------|---------------|
| LIQUID KILN FUEL | 7 | 414 | \$0.21 /GAL | FREDONIA, KS | 100 | \$4,781.70 |
| SOLID KILN FUEL | 40 | 2387 | \$50.00 /DRUM | FREDONIA, KS | 100 | \$118,350.00 |
| INCINERATION | 30 | 1778 | \$3.00 /GAL | COFFEYVILLE, KS | 150 | \$283,040.00 |
| LANDFILL | 13 | 769 | \$275.00 /DRUM | WAYNOKA, OK | 150 | \$211,475.00 |
| DEEP WELL | 3 | 178 | \$1.00 /GAL | DALLAS, TX | 364 | \$9,780.00 |
| RECYCLE | 7 | 414 | \$0.21 /GAL | TULSA, OK | 180 | \$4,781.70 |
| TOTAL | 100 | 5918 | | | | \$642,218.40 |

TANK INVENTORY

| DISPOSAL METHOD | PERCENTAGES | GALLONS | COST | DISPOSAL LOCATION | MILEAGE | DISPOSAL COST |
|------------------|-------------|---------|-------------|-------------------|---------|---------------|
| LIQUID KILN FUEL | 48 | 83,232 | \$0.21 /GAL | FREDONIA, KS | 100 | \$13,278.73 |
| INCINERATION | 10 | 13,748 | \$3.00 /GAL | COFFEYVILLE, KS | 150 | \$41,238.30 |
| DEEP WELL | 33 | 45,382 | \$1.00 /GAL | DALLAS, TX | 364 | \$45,362.13 |
| RECYCLE | 11 | 15,121 | \$0.21 /GAL | TULSA, OK | 180 | \$3,175.35 |
| TOTAL | 100 | 137,481 | | | | \$103,054.51 |

LABOR

3,138 DRUMS TO LOAD \$381.89 LOADING
 2,782 DRUMS TO TANKERS \$1,203.22 PUMPING
 137,481 GALLONS TO TANKERS \$1,080.94 PUMPING
 \$2,845.84 TOTAL LABOR

TRANSPORTATION

WASTES FROM CONTAINERS

| DISPOSAL METHOD | # OF LOADS | DRUMS | DISPOSAL LOCATION | MILEAGE | COST |
|------------------|------------|-------|-------------------|---------|-------------|
| LIQUID KILN FUEL | 4 | 414 | FREDONIA, KS | 100 | \$1,400.00 |
| SOLID KILN FUEL | 30 | 2387 | FREDONIA, KS | 100 | \$10,500.00 |
| INCINERATION | 17 | 1778 | COFFEYVILLE, KS | 150 | \$8,025.00 |
| LAND FILL | 10 | 789 | WAYNOKA, OK | 150 | \$5,250.00 |
| DEEP WELL | 2 | 178 | DALLAS, TX | 364 | \$2,548.00 |
| RECYCLE | 4 | 414 | TULSA, OK | 180 | \$2,520.00 |
| TOTAL | 67 | 5018 | | | \$31,143.00 |

WASTES FROM TANKS

| DISPOSAL METHOD | # OF LOADS | GALLONS | DISPOSAL LOCATION | MILEAGE | COST |
|------------------|------------|---------|-------------------|---------|-------------|
| LIQUID KILN FUEL | 11 | 83,232 | FREDONIA, KS | 100 | \$3,850.00 |
| INCINERATION | 3 | 13,748 | COFFEYVILLE, KS | 150 | \$1,575.00 |
| DEEP WELL | 8 | 45,382 | DALLAS, TX | 364 | \$10,182.00 |
| RECYCLE | 3 | 15,121 | TULSA, OK | 180 | \$1,890.00 |
| TOTAL | 25 | 137,481 | | | \$17,507.00 |

NOTE

 SOLIDS (E.G., SOLID KILN FUEL, LANDFILLED WASTES) ARE SHIPPED
 IN DRUMS AT 80 DRUMS PER LOAD
 LIQUIDS ARE SHIPPED IN BULK AT 8000 GALLONS PER LOAD

CONTAINER DISPOSAL

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|-------------------|--|---|----------------------------|------------------------|
| DRUM WASHING | NO. OF DRUMS LABOR TIME KILN FUEL GENERATED | 2,782 DRUMS \$8.65 PER HOUR 80 DRUMS/HOUR 2 GAL/DRUM | 5,584 GALLONS KILN FUEL | \$401.07 LABOR WASHING |

NOTE

THE DRUM WASHER CAN PROCESS 80 DRUMS/HOUR
THE WASHER GENERATES 2 GALLONS ADDITIONAL SOLVENT WASTE PER DRUM WASHED
TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS

| | | | | |
|---------------|-------------------------------|--|--|--|
| DRUM CRUSHING | LABOR TIME TRANS & DISP | \$8.65 PER HOUR 30 DRUMS/HOUR \$10.00 PER DRUM | | \$802.14 LABOR CRUSHING \$27,820.00 DRUM DISPOSAL |
|---------------|-------------------------------|--|--|--|

NOTE

THE DRUM CRUSHER CAN PROCESS 30 DRUMS/HOUR
TRANSPORTATION AND DISPOSAL ARE INCLUDED IN THE USPCI COST PER DRUM

TANK DECONTAMINATION

| | | | | |
|--------------|---|---|---------------------------|--------------------------|
| TANK WASHING | LABOR TIME NO. OF TANKS CREW SIZE WASTE WATER GENERATED | \$8.65 PER HOUR 4 HOURS/TANK 20 TANKS 3 MEN/TANK 185 GAL/TANK | 4,260 GALLONS WASTE WATER | \$2,698.80 LABOR WASHING |
|--------------|---|---|---------------------------|--------------------------|

NOTE

3-MAN CREW, 4 HOURS/TANK
THE RESIDUE VOLUME IS ESTIMATED BASED UPON PAST EXPERIENCE

SECTION I SUBTOTAL

\$828,290.77

II. ASSESSMENT OF SOIL AND CONCRETE CONTAMINATION

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|---|----------------------|------------------------------|----------------------------|----------------------------|
| CORE AND SAMPLE CONCRETE | LABOR | \$20.00 PER HOUR | | |
| | EQUIPMENT | \$15.00 PER SAMPLE | | \$500.00 LABOR SAMPLING |
| | TIME | 1 HOUR/SAMPLE | | \$375.00 CORING EQUIPMENT |
| | NO. OF SAMPLES | 25 SAMPLES | | |
| ANALYSIS | LABORATORY FEE | \$1,500.00 FOR TCLP & F SCAN | | \$37,500.00 ANALYTICAL |
| NOTE ***** ASSUME A 8 INCH CONCRETE SLAB TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS ***** | | | | |
| DECONTAMINATE THE CONCRETE | LABOR AND EQUIPMENT | \$45.00 PER HOUR | | |
| | TIME | 1,500 FT2/HOUR | | |
| | WASTEWATER GENERATED | 300 GAL/HOUR | 11035 GALLONS WASTE WATER | \$1,655.25 DECONTAMINATION |
| | AREA | 55,175 FT2 | | |
| SAMPLE AND ANALYZE RINSE WATER | LABOR | \$20.00 PER HOUR | | |
| | TIME | 1 HOUR/SAMPLE | | \$400.00 SAMPLING |
| | EQUIPMENT | \$1,500.00 PER SAMPLE | | \$30,000.00 ANALYTICAL |
| | # OF SAMPLES | 20 SAMPLES | | |
| CONTRACTED HEALTH RISK ASSESSMENT | | | | \$75,000.00 |
| SECTION II SUBTOTAL | | | | \$145,430.25 |

III. EQUIPMENT DECONTAMINATION

ACTIVITY

PARAMETER

UNIT VALUES

RESIDUE GENERATED

COST

STEAM CLEAN EQUIPMENT
(I.E., BOBCAT, FORKLUFT)

LABOR
TIME
EQUIPMENT
WASTE WATER GENERATED

\$8.65 PER HOUR
3 HOURS/LOADER
5 LOADERS
100 GAL/HOUR

1,500 GALLONS WASTE WATER

\$129.75 LABOR STEAMING

STEAM CLEAN
MISCELLANEOUS UNITS

LABOR
DISASSEMBLE UNITS
DECONTAMINATE UNITS
NO. OF UNITS
CREW SIZE
WASTE WATER GENERATED
INCINERATION GENERATED

\$8.65 PER HOUR
40 HOURS/UNIT
40 HOURS/UNIT
8 UNITS
4 MEN
300 GAL/UNIT
0.5 DRUMS/UNIT

1,800 GALLONS WASTE WATER
3 DRUMS INCINERATION

\$8,304.00 LABOR STEAMING
\$8,304.00 LABOR DISSASSBLING

STEAM CLEAN DRUM HANDLING
EQUIPMENT

LABOR
DISASSEMBLE UNITS
DECONTAMINATE UNITS
NO. OF UNITS
CREW SIZE
WASTE WATER GENERATED
INCINERATION GENERATED

\$8.65 PER HOUR
2 HOURS/UNIT
10 HOURS/UNIT
15 UNITS (OR LESS)
2 MEN
100 GAL/UNIT
2 DRUMS

1,500 GALLONS WASTE WATER
30 DRUMS INCINERATION

\$3,114.00 LABOR STEAMING

NOTE

TRANSPORTATION AND DISPOSAL OF RESIDUE GENERATED IS CALCULATED IN LATER SECTIONS

SECTION III SUBTOTAL

\$19,851.75

IV. MANAGEMENT OF AQUEOUS DECONTAMINATION RESIDUE

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|-----------------------------|--|--|----------------------------|---|
| PUMP RESIDUE FROM THE PLANT | VOLUME OF WASTEWATER LABOR TIME | 20,125 GALLONS \$8.65 PER HOUR 1100 GALLONS/HOUR | | \$158.28 LABOR LOADING |
| DISPOSAL | TRANSPORTATION DISTANCE TO DALLAS DISPOSAL FEE LOAD SIZE NUMBER OF LOADS | \$3.50 PER MILE 384 MILES \$1.00 PER GALLON 8,000 GAL/LOAD 4 LOADS | | \$5,098.00 TRANSPORTATION \$20,125.00 DISPOSAL |
| SECTION IV SUBTOTAL | | | | <hr/> \$25,379.28 |

V. MANAGEMENT OF KILN FUEL DECONTAMINATION RESIDUE

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|-----------------------------|--|---|----------------------------|--|
| TOTAL KILN FUEL GENERATED | | 5,584 GALLONS | | |
| LOADING KILN FUEL ON TRUCKS | LABOR TIME | \$8.85 PER HOUR 1,100 GAL/HOUR | | \$43.75 LABOR LOADING |
| DISPOSAL AND TRANSPORTATION | TRANSPORTATION DISTANCE TO FREDONIA DISPOSAL FEE LOAD SIZE NUMBER OF LOADS | \$3.50 PER MILE 100 MILES \$0.21 PER GALLON 8000 GALLONS/LOAD 1 LOADS | | \$350.00 TRANSPORTATION \$1,168.44 DISPOSAL |
| SECTION V SUBTOTAL | | | | \$1,562.19 |

VI. MANAGEMENT OF INCINERABLE DECONTAMINATION RESIDUE

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|------------------------------|---|---|----------------------------|--|
| INCINERABLE WASTES GENERATED | | 5 DRUMS | | |
| LOADING ON TRUCKS | LABOR TIME | \$8.65 PER HOUR 75 DRUMS/HOUR | | \$0.58 LABOR LOADING |
| TRANSPORTATION AND DISPOSAL | TRANSPORTATION DISTANCE TO COFFEYVILLE DISPOSAL FEE LOAD SIZE NUMBER OF LOADS | \$3.50 PER MILE 150 MILES \$3.00 PER GALLON 8000 GALLONS/LOAD 1 LOADS | | \$525.00 TRANSPORTATION \$825.00 DISPOSAL |
| SECTION VI SUBTOTAL | | | | <hr/> \$1,350.58 |

VII. CLOSURE CERTIFICATION

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|--|------------------------|------------------------------|----------------------------|---------------|
| A. PROFESSIONAL ENGINEERING SERVICES CLOSURE CERTIFICATION | ENGINEER'S FEE TIME | \$45.50 PER HOUR 80 HOURS | | \$3,640.00 |

NOTE

2 SITE INSPECTIONS/WEEK, 4 HOURS/INSPECTION, 8 WEEKS, 8 HOURS OF
OF CLOSURE PLAN REVIEW, 8 HOURS FOR CERTIFICATION PREPARATION

SECTION VII SUBTOTAL

\$3,640.00

VIII. CONTINGENCY AND TOTALS

| ACTIVITY ***** | PARAMETER ***** | UNIT VALUES ***** | RESIDUE GENERATED ***** | COST ***** |
|-------------------------------------|--------------------|----------------------|----------------------------|--------------------------------|
| TOTAL OF SECTION I-V CONTINGENCY | | 15.00% | | \$1,025,504.80 \$153,825.72 |
| TOTAL CLOSURE COST ESTIMATE | | | | <hr/> \$1,179,330.52 |

CLOSURE COST ESTIMATIONS INCORPORATE THE FOLLOWING REFERENCES

THE RICHARDSON RAPID SYSTEM
PRICESS PLANT CONSTRUCTION
ESTIMATING STANDARDS VOLUME 1
SITE WORK, PILING, CONCRETE
RICHARDSON ENGINEERING, INC
OCTOBER, 1988

EPA GUIDANCE MANUAL: COST
ESTIMATES FOR CLOSURE AND POST-
CLOSURE PLANS (SUBPARTS G AND H)
OSWER POLICY DIRECTIVE #8478.00-8

HYDROCARBON RECYCLERS, INC.
PAST EXPERIENCE

DISPOSAL FACILITIES UTILIZED FOR DISPOSAL AND TRANSPORTATION COSTS

APTUS ENVIRONMENTAL SERVICES
HWY. 188 N. INDUSTRIAL PARK
COFFEYVILLE, KANSAS

GIBRALTER WASTEWATERS
DALLAS, TEXAS FACILITY
INJECTION WELL DISPOSAL

SYSTEC
FREDONIA, KANSAS CEMENT
KILN FACILITY
DISPOSAL AS WASTE DERIVED FUEL

U.S. POLLUTION CONTROL, INC
LONE MOUNTAIN, OKLAHOMA FACILITY
LANDFILL DISPOSAL

Clean Harbors Kansas, LLC
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Closure Plan
Appendix J-C - Compliance Schedule

APPENDIX J-C

COMPLIANCE SCHEDULE
CLOSURE OF V-29, V-30, V-31, V-32

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Tanks V-29, V-30, V-31, and V-32 were used under Interim Status at the facility as sparge (aeration) tanks. These tanks are no longer necessary to the operation of the facility. Clean Harbors Kansas, LLC plans to close these tanks in accordance with the procedures discussed in Section J-9(b) of the Closure Plan. KDHE has requested that Clean Harbors Kansas, LLC submit a compliance schedule for closure of these four tanks as part of the revisions to the Part B permit application, rather than preparing a separate request for approval to close these tanks. This Attachment to the Closure Plan constitutes the compliance schedule.

Tanks V-29 and V-30 are each 90 gallon tanks. Tanks V-31 and V-32 hold 115 gallons each. All four of the tanks are located in Area D300, in a secondary containment area shared with other process units and container storage. At this time, the tanks have been emptied and are out of service. Clean Harbors Kansas, LLC does not intend to put these tanks back into hazardous waste service at the site.

Clean Harbors Kansas, LLC plans to close these tanks following the partial closure procedures outlined in Sections J-4 and J-9(b) of

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the RCRA Part B permit application. The steps to be taken are listed below.

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1. Surfaces will be scraped, sandblasted, brushed, or swept to remove all loose or caked residue. Surfaces will then be triple rinsed. The first wash/rinse will be performed with a high-pressure stream of steam or water with suitable detergents or other cleaning additives. The second wash/rinse will be performed using clean water with cleaning additives. Accumulated liquids from the two first washes will be collected and handled in accordance with Section J-4b of this closure plan. The third wash/rinse will be performed with clean (potable) water.
2. The equipment will be visually inspected after the triple wash/rinse to assess the presence of visible residue. If necessary, the facility will repeat all, or part, of the above procedures.
3. A representative sample will be taken of the rinse water from the final rinse of each hazardous waste management unit. These samples will be analyzed according to the Toxic Characteristic Leaching Procedure (TCLP) (40 CFR 261.24 as amended June 29, 1990).

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4. A unit will be considered decontaminated when the rinsate sample analysis results are lower than the values/levels listed in Table J.2, Decontamination Rinsate Analysis, and when no visible residues remain on the unit.
5. If the unit is not decontaminated after performing Steps 1 through 4, the facility will either repeat the above procedures or dismantle the unit for further management and/or disposal at an off-site permitted TSDF as a hazardous waste. Equipment disposed of in a landfill will meet the applicable Land Disposal Restriction (LDR) standards of 40 CFR 268.

Because the secondary containment system in which Tanks V-29, V-30, V-31, and V-32 are located serves as containment for other units that remain active, it will not be decontaminated during this partial closure. Similarly, ancillary equipment (e.g., pumps, piping) that is associated with other active units in the area will not be closed during this partial closure.

Clean Harbors Kansas, LLC is prepared to initiate partial closure of Tanks V-29, V-30, V-31, and V-32 upon receipt of approval from the KDHE. Partial closure will be performed in accordance with the schedule presented in Table J.7.

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Table J.7

Schedule for Partial Closure
Tanks V-29, V-30, V-31, V-32

| Partial Closure Activity | Days to Complete (from date authorized to proceed) |
|--|--|
| Decontaminate each tank according to the procedures in the Closure Plan. | 30 |
| Decontaminate ancillary equipment unique to the tanks addressed in this partial closure. | 30 |
| Analytical work complete. | 60 |
| Receive engineer's certification of closure. | 90 |
| Provide certification of closure to agency; closure complete. | 105 |

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Section K

Clean Harbors Kansas, LLC
RCRA Permit Application
Section K
Financial Requirements

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K-3 Notice in Deed: Page 4

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Appendix K-B, Certificate of Insurance for Closure or Post
Closure Care
Appendix K-C, Hazardous Waste Certificate of Insurance
Appendix K-D, Notice in Deed

List of Acronyms

Clean Harbors Kansas, LLC (CHK)
Certificate of Insurance for Closure or Post Closure Care (CI)
Treatment, Storage and Disposal (TSD)
Kansas Administrative Regulations (KAR)

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K-1 Financial Assurance: 40 CFR 264.143

Clean Harbors Kansas, LLC (CHK) has chosen to use a Certificate of Insurance for Closure or Post Closure Care (CI) to meet facility closure financial assurance requirements. The CI is currently issued by the National Insurance and Indemnity Corporation of South Burlington, Vermont.

Appendix K-A, Financial Assurance Information, summarizes facility information, funds assured for closure, and details regarding the CI. The CI is amended annually for inflation as required by 40 CFR 264.142(b) for hazardous waste Treatment, Storage, and Disposal (TSD) facilities operating under a Hazardous Waste Permit. The facility closure cost estimate and corresponding funding instrument will be adjusted on an annual basis for: 1) inflation; and 2) whenever facility changes affecting closure costs occur. A copy of the CI is presented in Appendix K-B, Certificate of Insurance for Closure or Post Closure Care.

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One of the options specified in 40 CFR 264.143 paragraphs (a) through (f) must be established to provide financial assurance for closure of a TSD facility. CHK may convert the financial instrument described above to an alternate option specified by federal regulations.

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K-2 Insurance Coverage: 40 CFR 264.147

CHK maintains insurance policies to cover general liability, automobile liability, workers compensation, employers' liability and environmental impairment liability (pollution legal liability). The environmental impairment liability includes both sudden and non-sudden pollution coverage. A copy of the Hazardous Waste Facility Certificate of Insurance for accidental occurrences is presented in Appendix K-C, Hazardous Waste Certificate of Insurance.

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K-3 Notice in Deed: 40 CFR 119(b) (1)

In compliance with Kansas Administrative Regulations (KAR) 28-31-8(c) and in anticipation of Post-closure Notices required of TSDFs, CHK has submitted correspondence dated April 16, 1991 regarding property use for hazardous waste management activities to the Registrar of Deeds for Sedgwick County. Copies of these documents are presented in Appendix K-D, Notice in Deed.

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RCRA Permit Application
Section K
Financial Requirements
Appendix K-A - Financial Assurance Information

Appendix K-A
Financial Assurance Information

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Clean Harbors Kansas, LLC
RCRA Permit Application
Section K
Financial Requirements
Appendix K-A - Financial Assurance Information

Facility Information

EPA ID NO: KSD007246846
Facility Name: Clean Harbors Kansas, LLC
Facility Location: 2549 North New York, Wichita, Kansas 67219

Certificate of Insurance for Closure or Post Closure Care (CI)

CI Policy Number: [REDACTED] Ex. 4
Issuing Institution: Indian Harbor Insurance Company, Stamford, CT
Execution Date: March 11, 2002
Funds Assured: \$ 1,519,094.00

**Clean Harbors Kansas, LLC
RCRA Permit Application
Section K
Financial Requirements
Appendix K-B - Certificate of Insurance**

Appendix K-B

Certificate of Insurance for Closure or Post Closure Care

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CERTIFICATE OF INSURANCE FOR CLOSURE AND/OR POST-CLOSURE CARE

Name and Address of Insurer (herein called the "Insurer"):

Indian Harbor Insurance Company
Seaview House, 70 Seaview Avenue
Stamford, CT 06902-6040

Name and Address of Insured (herein called the "Insured"):

Safety-Kleen (Wichita), Inc.
2549 North New York Street
Wichita, KS 67219

FACILITY COVERED:

| | |
|-----------------|--|
| EPA ID Number: | KSD 007 246 846 |
| Name: | Safety-Kleen (Wichita), Inc. |
| Address: | 2549 North New York St., Wichita, KS 67219 |
| Closure Amount: | \$1,519,094 |
| Face Amount: | \$1,519,094 |
| Policy Number: | [REDACTED] |
| Effective Date: | March 11, 2002 |

Ex. 4

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for closure for the facility identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of 40 CFR 264.143(e), 264.145(e), 265.143(d), and 265.145(d), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

Whenever requested by the Secretary of the Kansas Department of Health and Environment, the Insurer agrees to furnish to the Secretary a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in 40 CFR 264.151(e) as such regulations were constituted on the date shown immediately below.

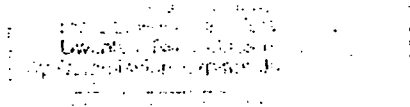
Brett McGovern
(Authorized signature for Insurer)

Brett McGovern, Senior Underwriter
Authorized Representative of Indian Harbor Insurance Company

Timothy Kulmar
(Signature of witness or notary)

March 18, 2002
(Date)

SEAL



Clean Harbors Kansas, LLC
RCRA Permit Application
Section K
Financial Requirements
Appendix K-C - Hazardous Waste Certificate of Insurance

Appendix K-C
Hazardous Waste Certificate of Insurance

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| MARSH USA INC. | | CERTIFICATE OF INSURANCE | | | |
|---|--|--|---|-----------------------------------|---|
| PRODUCER Marsh Two Liberty Square 75 Beattie Place Suite 300 Greenville, SC 29601-2164 Attn: Abi Potter | | THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER OTHER THAN THOSE PROVIDED IN THE POLICY. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES DESCRIBED HEREIN. | | | |
| INSURED SAFETY-KLEEN SERVICES, INC. AND ITS SUBSIDIARY AND AFFILIATED COMPANIES 1301 GERVAIS STREET SUITE 300 COLUMBIA, SC 29201 | | COMPANIES AFFORDING COVERAGE <div style="border: 1px solid black; padding: 2px;">COMPANY A AMERICAN HOME ASSURANCE CO</div> <div style="border: 1px solid black; padding: 2px;">COMPANY B NATIONAL UNION FIRE INSURANCE COMPANY</div> <div style="border: 1px solid black; padding: 2px;">COMPANY C INSURANCE CO STATE OF PA</div> <div style="border: 1px solid black; padding: 2px;">COMPANY D GREENWICH INSURANCE COMPANY</div> | | | |
| COVERAGES This certificate supersedes and replaces any previously issued certificate for the policy period noted below. | | | | | |
| THIS IS TO CERTIFY THAT POLICIES OF INSURANCE DESCRIBED HEREIN HAVE BEEN ISSUED TO THE INSURED NAMED HEREIN FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THE CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, CONDITIONS AND EXCLUSIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. | | | | | |
| CO LTR | TYPE OF INSURANCE | POLICY NUMBER | POLICY EFFECTIVE DATE (MM/DD/YY) | POLICY EXPIRATION DATE (MM/DD/YY) | LIMITS |
| A | GENERAL LIABILITY | [REDACTED] | 09/01/01 | 09/01/02 | GENERAL AGGREGATE \$ 2,000,000 |
| | <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY | | | | PRODUCTS - COMP/OP AGG \$ 2,000,000 |
| | <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR | | | | PERSONAL & ADV INJURY \$ 500,000 |
| | OWNERS' & CONTRACTOR'S PROT | | | | EACH OCCURRENCE \$ 500,000 |
| | <input checked="" type="checkbox"/> \$500,000 SIR | | | | FIRE DAMAGE (Any one fire) \$ 500,000 |
| | | | | | MED EXP (Any one person) \$ 50,000 |
| | | | | | |
| A | AUTOMOBILE LIABILITY | [REDACTED] - All Other States [REDACTED] - TX [REDACTED] - MA, VA | 09/01/01 | 09/01/02 | COMBINED SINGLE LIMIT \$ 2,000,000 |
| | <input checked="" type="checkbox"/> ANY AUTO | | | | BODILY INJURY (Per person) \$ |
| | <input type="checkbox"/> ALL OWNED AUTOS | | | | BODILY INJURY (Per accident) \$ |
| | <input type="checkbox"/> SCHEDULED AUTOS | | | | PROPERTY DAMAGE \$ |
| | <input type="checkbox"/> HIRED AUTOS | | | | |
| | <input type="checkbox"/> NON-OWNED AUTOS | | | | |
| | <input checked="" type="checkbox"/> MCS-90 | | | | |
| | GARAGE LIABILITY | | | | AUTO ONLY - EA ACCIDENT \$ |
| | <input type="checkbox"/> ANY AUTO | | | | OTHER THAN AUTO ONLY: \$ |
| | | | | | EACH ACCIDENT \$ |
| | | | | | AGGREGATE \$ |
| | | | | | |
| B | EXCESS LIABILITY | [REDACTED] | 09/01/01 | 09/01/02 | EACH OCCURRENCE \$ 10,000,000 |
| | <input checked="" type="checkbox"/> UMBRELLA FORM | | | | AGGREGATE \$ 10,000,000 |
| | OTHER THAN UMBRELLA FORM | | | | *N/A TO INSURER "D" \$ |
| | | | | | |
| C | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY | [REDACTED] - All Other States [REDACTED] - CA [REDACTED] - WI | 09/01/01 | 09/01/02 | <input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER \$ |
| | <input type="checkbox"/> THE PROPRIETOR/PARTNERS/EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input type="checkbox"/> EXCL | | | | EL EACH ACCIDENT \$ 1,000,000 |
| | | | | | EL DISEASE-POLICY LIMIT \$ 1,000,000 |
| | | | | | EL DISEASE-EACH EMPLOYEE \$ 1,000,000 |
| D | CONSULTANTS ENVIR LIAB | [REDACTED] | 09/01/01 | 09/01/02 | EACH LOSS 10,000,000 |
| | | | | | AGGREGATE 10,000,000 |
| | | | | | |
| D | POLLUTION LEGAL LIAB | [REDACTED] | 10/15/00 | 11/17/02 | AGGREGATE 10,000,000 |
| DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS (LIMITS MAY BE SUBJECT TO DEDUCTIBLES OR RETENTIONS) COVERAGE APPLIES TO ANY AND ALL SUBSIDIARY OR AFFILIATED COMPANIES. | | | | | |
| CERTIFICATE HOLDER SAMPLE - CORPORATE, SERVICES SAFETY-KLEEN SERVICES, INC. AND ITS SUBSIDIARY & AFFILIATED COMPANIES 1301 GERVAIS STREET, SUITE 300 COLUMBIA, SC 29201 | | | CANCELLATION SHOULD ANY OF THE POLICIES DESCRIBED HEREIN BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE INSURER AFFORDING COVERAGE WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED HEREIN, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER AFFORDING COVERAGE, ITS AGENTS OR REPRESENTATIVES. | | |
| MARSH USA INC. BY: <i>[Signature]</i> | | | MM1(B/99) VALID AS OF: 08/30/01 | | |

Clean Harbors Kansas, LLC
RCRA Permit Application
Section K
Financial Requirements
Appendix K-D - Notice in Deed

Appendix K-D
Notice in Deed

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Sedgwick County Courthouse
4th Floor
Registrar of Deeds
525 N. Main
Wichita, Ks. 67203

4/16/91

Dear Registrar of Deeds

This letter serves as official owner notification for the property :
at 2549 N. New York Ave., HRI operated property.

North Industrial Park Fourth Addition,

block 2, lot 1

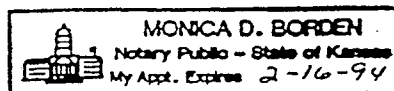
Key Number

87-0- -B-1 3826-012583-6703

This is in accordance with Kansas environmental regulation K.A.R.
28-31-8c. This property has been used to manage hazardous waste
and all records regarding permits, closure or both are available
for review at the Kansas Department of Health and Environment
offices in Topeka.

David Trombold

David Trombold
Vice President
Associated Chemical, Inc.



Monica D. Borden
9-13-91

For an acknowledgment in a representative capacity:
State of Kansas
(County) of Sedgwick

This instrument was acknowledged before me on

September 13, 1991
by David Trombold
as Vice President
of Associated Chemical, Inc.

Monica D. Borden
(Signature of notarial officer)

Title (and Rank)

Sedgwick County Courthouse
4th Floor
Registrar of Deeds
525 N. Main
Wichita, Ks. 67203

4/16/91

Dear Registrar of Deeds

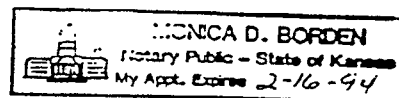
This letter serves as official owner notification for the property
at 2549 N. New York Ave., HRI operated property.

North Industrial Park Fourth Addition,

| | Key Number |
|----------------|----------------------------|
| block 1, lot 2 | 89-0- -B-13819-060842-6703 |
| lot 3 | 89-0- -B-13820-026393-6703 |
| lot 4 | 89-0- -B-13821-026394-6703 |
| lot 5 | 89-0- -B-13822-026395-6703 |

This is in accordance with Kansas environmental regulation K.A.R.
28-31-8c This property has been used to manage hazardous waste and
all records regarding permits, closure or both are available for
review at the Kansas Department of Health and Environment offices
in Topeka.

David Trombold
David Trombold



Monica D. Borden
9-13-91

For an acknowledgment in a representative capacity:

State of Kansas
(County) of Sedgwick

This instrument was acknowledged before me on

September 13, 1991
by David Trombold
as Vice President
of Associated Chemical, Inc.

Monica D. Borden
(Signature of notarial officer)

Title (and Rank)

Clean Harbors Kansas, LLC
RCRA Permit Application
Section L
Solid Waste Management Units and Corrective Action

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| Acronym table..... | Page ii |
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| L-1a <u>Description of Solid Waste Management Units:</u> | Page 1 |
| L-1b <u>SWMU - Area West of Building B 40 CFR 270.14(d)</u> | Page 3 |
| L-1b(1) <u>General Description of SWMU - Area West</u> | |
| <u>of Building B</u> | Page 3-A |
| L-1b(2) <u>Releases from SWMU - Area West of</u> | |
| <u>Building B</u> | Page 3-C |
| L-1b(3) <u>Sample and Analytical Data</u> | Page 3-C |
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RCRA Permit Application
Section L
Solid Waste Management Units and Corrective Action

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Figure L.1, Location of SWMU - Area West of Building B

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Appendix L-A, Draft 29th and Mead RI/FS Report - Excerpts

Acronym Table

Solid Waste Management Unit (SWMU)
Clean Harbors Kansas, LLC (CHK)
Kansas Administrative Regulations (KAR)
United States Environmental Protection Agency (USEPA)

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Clean Harbors Kansas, LLC
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Section L
Solid Waste Management Units and Corrective Action

L-1 Information Requirements for Solid Waste Management Units:
40 CFR 270.14(d)

The purpose of this section is to provide information regarding the Solid Waste Management Unit (SWMU)s at the Clean Harbors Kansas, LLC facility located in Wichita, Kansas. This section is provided to fulfill the requirements of the Kansas Administrative Regulations (KAR), Title 28, Article 31 and 40 CFR Part 270. Article 31, Hazardous Waste Management Standards and Regulations, of the KAR incorporates, with few additions, the RCRA regulations contained in 40 CFR Parts 260 through 270. Therefore, this section will refer only to the federal regulations.

L-1a Description of Solid Waste Management Units: 40 CFR
270.14(d)(1)

A description of the Clean Harbors Kansas, LLC (CHK) facility is presented in section B (Facility Description) of this RCRA permit application. Specific information regarding active SWMUs utilized for hazardous waste management is presented in Sections D (Use and Management of Containers), E (Tank Systems), and M (Other Regulated Units). These sections include the following information:

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Section L
Solid Waste Management Units and Corrective Action

! Type, Location and Description of the SWMUs:

Sections B, D, E, and M (Facility Description, Use and Management of Containers, Tank Systems, and Other Regulated Units) of the RCRA permit application contain descriptions of RCRA regulated SWMUs at the facility. These descriptions include the general dimensions of these units. In addition, the Facility Description, Section B also contains a topographic map illustrating the location of each SWMU within the facility as required by 40 CFR 270(b)(19).

! Dates of Operation:

CHK is an existing waste management facility. However, the site has been used for other business purposes by companies which have sequentially located at the site for some forty years. The industrial district of the area developed over the past 95 years. The history of hazardous waste operations under EPA ID No. KSD007246846 began in 1979 with Reid Supply Co., Inc. Conservation Services, Inc. purchased certain assets, including the permit (e.g., from Reid Supply Co. in 1986. Subsequently, Hydrocarbon Recyclers, Inc. of Wichita acquired the capital stock of Conservation Services, Inc. in 1987.

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Section L
Solid Waste Management Units and Corrective Action

! Description of Wastes:

The CHK facility stores, treats, and recovers for recycling hazardous and nonhazardous wastes. The types of wastes managed in the RCRA regulated SWMUs are identified in Sections A (Part A Application) and C (Waste Characterization). The sampling and analysis provisions for managing these waste types are provided in Appendix C-A (Waste Analysis Plan) of Section C.

L-1b SWMU - Area West of Building B 40 CFR 270.14(d)

Excavation of a roof drainage system resulted in the discovery of an additional SWMU, apparently consisting of buried paint cans, located west of Building B. Other wastes may be present as well; the SWMU has not been fully investigated. This SWMU did not result from any CHK activity at the site. Available information, as required by 40 CFR 270.14(d) is provided in this section.

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L-1b(1) General Description of SWMU - Area West of Building B

A SWMU located in an area west of Building B and apparently consisting of buried paint cans was discovered during excavation for site improvements during the spring of 1992; a full investigation of this SWMU has not been completed. The SWMU, located approximately twenty feet west of the southwest corner of Building B, covers an area of approximately twenty square feet. Figure L.1, Location of SWMU - Area West of Building B, shows the location of this disposal area. The waste was tentatively identified as paint-related wastes.

Historical use of the SWMU located west of Building B is not definitively known. The property presently occupied by CHK was used for paint manufacturing from the mid 1940's to the mid 1970's. Reid Supply acquired the site in 1979, and HRI purchased the LESW facility in 1987. The on-site burial of these drums reportedly occurred prior to acquisition of the site by Reid Supply. CHK has not buried any waste in this SWMU, nor at any other location on the property.

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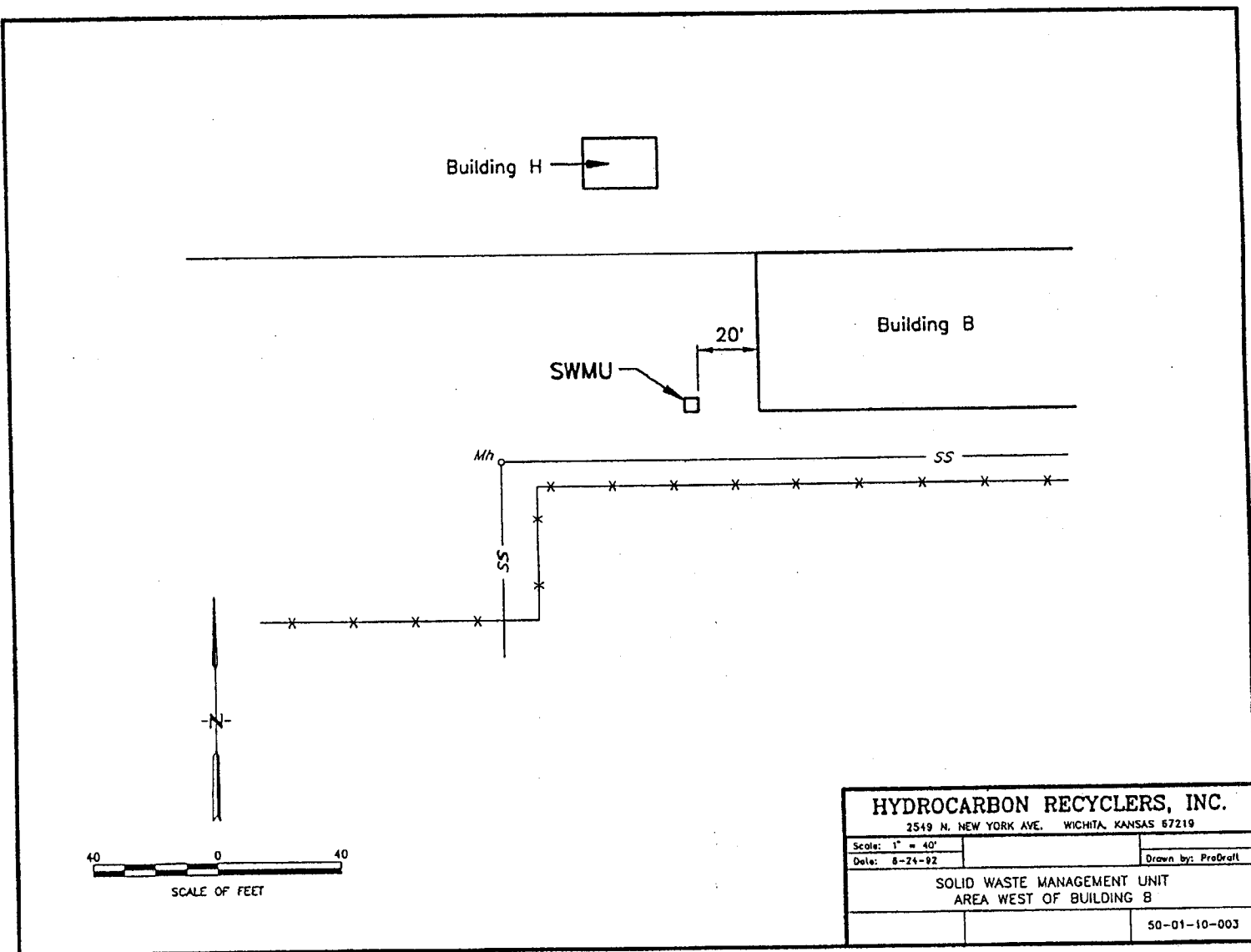


Figure L.1, Location of SWMU -
 Area West of Building B

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L-1b(2) Releases from SWMU - Area West of Building B

CHK is not aware of any releases of waste from this SWMU. Therefore, the information required under 40 CFR 270.14(d)(2) is not applicable. The SWMU area west of Building B will be evaluated for potential releases as part of a corrective action program administered under the RCRA/HSWA permit.

L-1b(3) Sample and Analytical Data

Analytical data identified several hazardous constituents in wastes present in the SWMU area west of Building B. The contents of some paint cans and associated soil samples were analyzed. Analytical results are presented in Appendix L-A.

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L-2 Information Pertaining to Releases: 40 CFR 270.14(d)(2)

CHK is not aware of any releases of hazardous waste or hazardous waste constituents from regulated units within the facility. Therefore, the information required under 40 CFR 270.14(d)(2) is not available (i.e., 40 CFR 270.14(d)(2) is not applicable).

A site inspection for the purpose of identifying potential SWMUs was completed by B. & V. Waste Science and Technology Corporation under contract Number 68-W9-0006 to United States Environmental Protection Agency (USEPA) Region VII in 1990. The Draft Preliminary Assessment Report - RCRA Facility Assessment, Clean Harbors Kansas, LLC, Wichita, Kansas is presented as an appendix to Section M, Other Regulated Units.

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L-3 Superfund Activities

The CHK facility is located within the area identified as the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" site in the Wichita North Industrial District. Excerpts from the Draft Preliminary Assessment Report are presented as Appendix L-A, Draft 29th and Mead RI/FS Report - Excerpts.

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RCRA Permit Application

Section L

Solid Waste Management Units and Corrective Action

Appendix L-A - Draft 29th and Mead RI/FS Report

Appendix L-A

Draft 29th and Mead RI/FS Report - Excerpts

Groundwater Technology, Inc., August 1991. *Draft Remedial Investigation Report of the 29th and Mead RI/FS*. Volume 1, prepared for Wichita North Industrial District, 60 pp.

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RCRA Permit Application

Section L

Solid Waste Management Units and Corrective Action

Appendix L-A - Draft 29th and Mead RI/FS Report

Appendix L-A
Draft 29th and Mead RI/FS Report - Excerpts

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| 4.3 - Site Stratigraphy | |
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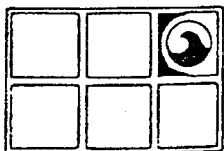
Excerpts from:

Groundwater Technology, Inc., August 1991. *Draft Remedial Investigation Report of the 29th and Mead RI/FS*. Volume 1, prepared for Wichita North Industrial District, 60 pp.

August 27, 1992

Revision No. 1

DRAFT



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VOLUME I

**DRAFT REMEDIAL INVESTIGATION REPORT
FOR THE
29TH AND MEAD RI/FS**

PREPARED FOR:

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DISTRICT**

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FOR:

**MR. MICHAEL BRENOEL
VICE PRESIDENT
REGIONAL MANAGER**

**(CM\WNID\WNID-RI2.WND)
AUGUST 27, 1991**

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EXECUTIVE SUMMARY

INTRODUCTION

In November 1989, Groundwater Technology, Inc., was contracted by the Potentially Responsible Parties within the Wichita North Industrial District to perform a Remedial Investigation and Feasibility Study at the 29th and Mead Comprehensive Environmental Response, Compensation, and Liability Act or "Superfund" Site in Wichita, Kansas. The Remedial Investigation as outlined in the Work Plan (HWS Technologies, 1989a) approved by the Kansas Department of Health and Environment and the U.S. Environmental Protection Agency, involved the performance of four major activities: 1) Field Investigation Data Acquisition Study, 2) Computer Modeling of the site, 3) Long Term Monitoring program, and 4) Risk Assessment.

The Field Investigation Data Acquisition Study was initiated on June 20, 1990, with field activities completed on July 20, 1990. Activities performed during the study included collection of soils at 49 locations, surface water at three locations, and groundwater at 13 locations. Collected samples were analyzed for volatile organic compounds and/or metals. The results of this activity were summarized in a report entitled "Field Investigation Data Acquisition Study," prepared by Groundwater Technology, Inc., and approved by the Kansas Department of Health and Environment on November 20, 1990.

The first round of sampling under the Long Term Monitoring program was initiated on March 22, 1991, and was completed on July 25, 1991. Field work for the program included installing 40 groundwater monitor wells, sampling groundwater for contaminants from 75 wells, and measuring fluid levels in 88 wells.

Computer modeling techniques were employed to assist interpretation of results and to support the baseline risk assessment. The modeling program CPS-PC™ was used to construct a groundwater gradient map for the site. The contaminant transport model MOC was used for the baseline risk assessment which is presented under separate cover.

SITE CONDITIONS INCLUDING REMEDIAL ACTIONS

The 29th and Mead Site is located in north Wichita, Kansas in an area bounded by 37th Street on the north, I-135 on the west, 17th Street on the south, and Broadway Street on the east. The site is an industrial area that has developed over the past 95 years. Industries present in the area have changed over the years. Current businesses include chemical supply companies, grain elevators, railroad facilities, metal fabricating

companies, foundries, refineries, meat processing companies, recyclers/salvage facilities, roofing companies, concrete companies, food processing companies, gasoline retailers, and others.

Past investigations conducted throughout the site have shown the presence of soil and groundwater contamination.

Primary contaminants identified to be present include petroleum hydrocarbons including separate-phased liquids and chlorinated volatile organic compounds including trichloroethene, 1,1,1-trichloroethane and their degradation products.

Several remedial actions have been initiated or completed within or near the 29th and Mead Site. These include, but are not necessarily limited to:

- Soil vent system and hydraulic control and groundwater treatment systems at Evcon Industries, Inc. (formerly Coleman);
- Separate-phase hydrocarbon recovery at Coastal Derby Refining Company;
- Hydraulic control system at OHSE Meat Company;
- Hydraulic control system at Reid Supply, Inc.;
- Aboveground tank removal at the former Golden Rule Refinery, on property currently owned by Coastal Derby;
- Filling of sludge pit at the former Golden Rule Refinery, on property currently owned by Dolese Brothers Concrete;
- Drum removal at former solvent reclamation facility at the former Golden Rule Refinery site, on property currently owned by Wichita Brass and Aluminum;
- Pit cleanup at the former Barnsdahl Refinery, on property currently occupied by Kansas Metals, Inc.;

- Tank closure at the former Johns' Refinery, on property owned by Ava and Hazel Johns;
- Stabilization of Johns' Sludge Pond, on property currently owned by the City of Wichita;
- Tank pit cleanup or closures at Kansas Metals, Excel, Evcon, Dolese Brothers, and Universal Quik Mart.

STUDY AREA INVESTIGATION METHODOLOGY

The Remedial Investigation of the 29th and Mead Site involved the collection of soil, surface water, sediment, and groundwater samples. Collected samples were generally analyzed for volatile organic compounds, antimony, iron, and RCRA metals. Selected samples were analyzed for base/neutral and acid organic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls.

The field investigation was completed in two stages. The first was the Field Investigation Data Acquisition Study which involved:

- Installation and sampling of 32 soil borings;
- Installation and sampling of two background soil borings;
- Installation and sampling of four borings at the locations of refinery pits;
- Collection of seven surface soil samples;
- Collection of three surface water samples;
- Collection of four stream sediment samples; and
- Collection of samples from 13 existing monitor wells.

The second part of the field investigation was the initial activities of the Long Term Monitoring program. These activities included:

- Installation of 40 monitor wells;
- Collection of samples from 75 monitor wells for analysis of volatile organic compounds; and
- Fluid level measurements.

Standard procedures outlined in the approved Work Plan and Field Sampling Plan were followed during completion of the sampling and analysis activities of the Remedial Investigation.

PHYSICAL CHARACTERISTICS OF THE SITE

The 29th and Mead Site is located in Central Sedgwick County, Kansas in the Arkansas River Lowlands section of the Central Lowland Physiographic Province. The site is underlain by Pleistocene and Recent-Age alluvial clay, sand, and gravel which overlies shale of the Wellington Formation.

Permeable alluvium of the Arkansas River Valley is the primary source of usable groundwater in Sedgwick County. Within the study area, groundwater is used primarily for industrial purposes. The aquifer has transmissivities that range to 250,000 gallons per day per foot. The aquifer is under water table conditions and is as much as 30 feet thick at the site.

Groundwater flows generally from the north/northeast to south/southwest at the site. Natural gradient is locally affected by pumping wells in the aquifer at Evcon, OHSE Meats, Coastal Derby Refining, and others. Natural groundwater flow rates are estimated to range between about 0.20 feet per day to 1.15 feet per day.

RESULTS OF INVESTIGATION

Soil Borings

Benzene, toluene, trichlorethene, tetrachloroethene, and 1,1,1-trichloroethane were detected by field gas chromatography in one or more soil samples collected from 32 soil borings. Additional analyses were made by field photoionization detector and laboratory methods.

Background Borings

Samples from two off-site background borings were analyzed. No volatile organic or base/neutral and acid extractable compounds were identified in these samples. Quantifiable concentrations of arsenic, barium, chromium, lead, and iron were detected. The detected concentrations did not exceed expected levels for native soils.

Borings Near Pits

Soil samples from four borings installed downgradient from pits at the former Golden Rule and Barnsdahl Refineries were analyzed. No sample contained any volatile organic compound. The metals antimony, arsenic, barium, cadmium, chromium, iron, lead, mercury, and silver were detected in samples from borings. Lead exceeded the maximum native soil range.

Chlorinated volatile organic compounds, including trichloroethene, dichloroethane, trans-1,2-dichloroethene, and vinyl chloride were quantified in groundwater samples from two borings. Only the vinyl chloride concentration in the groundwater sample from boring PB-1 exceeded the Kansas Action Level.

Benzene, toluene, ethylbenzene, or xylenes were quantified in groundwater samples from three borings. The benzene concentration at PB-1 exceeded the Kansas Action Level.

Groundwater samples collected from borings near pits contained antimony, arsenic, barium, iron, and lead. The concentrations of iron and barium exceeded Kansas Action Levels in one or more samples. Reported barium and iron concentrations reflect natural conditions for this part of Kansas.

Surface Soil Samples

Arsenic, barium, cadmium, chromium, iron, lead, selenium, and silver were detected in one or more of seven surface soil samples collected within the 29th and Mead Site. Only lead and selenium were detected at concentrations exceeding the maximum background concentrations. Base/neutral and acid extractable compounds were detected in one or more samples. Compounds detected were coal and petroleum constituents including anthracenes, fluoranthenes, pyrenes, and chrysene.

At location B4-SS-1, duplicate samples were collected for analysis for polychlorinated bipenyls. The average concentration, as Arochlor 1260, was below the limits for unrestricted areas.

Analytical results for surface soil samples collected during this investigation do not confirm higher concentrations identified at the same sampling locations during the preliminary site assessment.

Surface Water Samples

Water samples were collected at three locations in surface streams at the site. Volatile organic compounds detected include 1,1,1-trichloroethane, trichloroethene, tetrachloroethene, dichloroethane, trans-1,2-dichloroethene, benzene, toluene, ethylbenzene, and xylenes. No sample contained any volatile organic compound at concentrations which exceeded Kansas Action Levels.

Barium and Iron were the only metals quantified to be present in surface water samples. Kansas Action Levels were not exceeded for either metal.

Surface water samples were also analyzed for total organic carbon and total suspended solids.

Stream Sediment Samples

No volatile organic compound was detected in stream sediment samples. Arsenic, barium, cadmium, chromium, lead, and iron were detected in one or more samples. The reported concentration of the detected metals do not exceed the natural range.

Existing Well Samples

During the Field Investigation Data Acquisition Study, groundwater samples were collected from 13 of 16 wells. Three wells were not sampled due to the presence of separate-phase hydrocarbons. The samples were analyzed for the RCRA metals, plus antimony, and iron.

Arsenic, antimony, barium, lead, and iron were detected in groundwater samples. Kansas Action Levels were exceeded for arsenic in two wells, for barium in one well, and for iron in 13 wells. The occurrence of barium and iron above the Kansas Action Level is not unusual in the area. The high arsenic condition is localized to the area south of 21st Street.

Well Samples from Long Term Monitoring Program

The Long Term Monitoring program involves 40 new wells installed during this investigation and 42 existing wells. The wells of this program are screened to allow sampling of the shallow and deep portions of the aquifer. Groundwater samples were collected in 75 of these wells during April, May, and July 1991. Five wells were not sampled due to the presence of separate-phase hydrocarbons and two wells were not sampled because they were dry. Collected samples were analyzed for volatile organic compounds.

Several chlorinated volatile organic compounds and petroleum hydrocarbon compounds were detected in samples from the Long Term Monitoring Program wells. The results of the analysis are summarized on Table E1 and are presented by aquifer depth (i.e., shallow and deep).

Deep Wells

Eleven of the 13 principal volatile organic compounds listed in Table E1 were detected in one or more of the 13 deep wells. Ethylbenzene and xylenes were not detected. Applicable Kansas Action Levels were exceeded for 9 of the 11 detected compounds (all except toluene and 1,2-dichloroethane). The compound most frequently exceeding the Kansas Action Level was trichloroethene; vinyl chloride, and 1,1,-dichloroethene were next. Exceeding the Kansas Action Level does not necessarily indicate that an unacceptable risk is posed. Reference should be made to the Risk Assessment which is submitted under separate cover.

Shallow Wells

All 13 volatile organic compounds of interest were detected in one or more wells. Trichloroethene was the most frequently detected compound and the compound which had the greatest number of wells exceeding the Kansas Action Level. Action Levels were exceeded in shallow wells for all compounds except toluene and ethylbenzene.

CONCLUSIONS

Data collected during this investigation were used to assist determination of the extent of contamination, the pathways of contaminant migration, and sources of contaminants at the 29th and Mead Site.

The available data indicate the soil, sediment, and surface water contain metals, volatile organic compounds, polynuclear aromatic hydrocarbons, and polychlorinated biphenyls. The concentrations reported during this investigation do not confirm data generated during the preliminary assessment.

Groundwater at all depths investigated contain fuel components and chlorinated solvents and their degradation compounds at various locations at the Site. There are six identifiable plumes of the chlorinated solvents trichlorethene/tetrachloroethene and degradation compounds affecting all depths of the aquifer. At least 12 potential source areas of these compounds have been tentatively identified; two of these potential source areas are off site and upgradient of the Site. Three plumes of 1,1,1-trichloroethane and its degradation compounds affect all depths of the aquifer. Six potential source areas have been described; one is located off site.

Four fuel component plumes have been identified affecting the shallow zone of the aquifer. Three areas represent past or present petroleum refineries. The fourth plume is located south of 36th Street.

Three small carbon tetrachloride plumes have been identified affecting the shallow portions of the aquifer. Each plume has one potential source area.

1.3 SITE LOCATION AND DESCRIPTION

The 29th and Mead Site is located within the Central section of Sedgwick County, Kansas. The 29th and Mead Site is in the northern section of the City of Wichita and is generally bordered by 37th Street to the north, I-135 to the east, 17th Street to the south, and Broadway Street to the west (Figure 1). The 29th and Mead Site topography is generally flat with localized topographic relief created by scattered drainage pathways. The area, being industrialized, has developed such that surface water flows either to storm sewers, to canalways, to tributaries of Chisholm Creek, or to Chisholm Creek itself, and eventually to the Arkansas River.

The area geology consists of 10 to 15 feet of silt and clay underlain by non-cohesive deposits consisting of fine to very coarse gravel, fine to coarse sand and some silty clay. These alluvial deposits average 45 feet in thickness and form the primary aquifer in the area. A shale unit, the Wellington Formation, underlies the alluvial deposits and forms an aquitard under the area of investigation.

The groundwater depth in the area generally ranges from 10 to 18 feet below land surface. Seasonal fluctuations are expected to average 2 to 4 feet from a median groundwater depth of 14 feet. The general flow of groundwater is to the south.

1.4 PROJECT HEALTH AND SAFETY

An HSP was prepared by HWST in accordance with Occupational Safety and Health Administration (OSHA) Standards "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). In addition, a comprehensive HSP incorporating safety requirements and environmental health and safety requirements was prepared for the project by Groundwater Technology. Both plans, presented in Deliverable Packet #3 (Groundwater Technology, 1990c), were employed during performance of the project field activities. The HSPs include the following:

- 1) Emergency first aid and routes of exposure;
- 2) Site history and description;
- 3) Site control and work zones;

2.4 REID SUPPLY, INC.

2.4.1 SITE LOCATION/HISTORY

Reid Supply, Inc. (Reid Supply) is located at 2525 New York (see Figure 3, Map Code D). The property has been utilized as a storage, recycling, and collection point for liquid and solid hazardous waste material as well as bulk chemical repackaging and distribution since the 1970s. Hydrocarbon Recyclers, Inc., a subsidiary of USPCI purchased Reid Supply, Inc. in 1988.

2.4.2 PAST REMEDIATION ACTIVITIES

In July 1990, a non-contact cooling water industrial well was installed at Reid Supply. Pumping from the well was initiated in early January 1991. The well operates intermittently at 30 gpm. The discharge from the system is to the Wichita Sanitary Sewer System. Analysis of the discharged water has indicated methylene chloride, tetrachlorethane, trichloroethene, 1,2-dichloroethene, xylenes and toluene at concentrations of less than 100 ug/L per constituent.

2.5 WICHITA BRASS AND ALUMINUM FOUNDRY

2.5.1 SITE LOCATION/HISTORY

The Wichita Brass and Aluminum Foundry (WBA) is located at 412 East 29th Street (see Figure 3, Map Code E). The site occupies the southwest quarter of property formerly owned by Golden Rule Refinery, a petroleum refinery which was reportedly in operation from the early 1900's to approximately 1940. Mr. Mike Carter, the current president of WBA, reported that a portion of the property was leased by WBA from 1944 to 1946, and then was purchased by WBA. The remainder of the current WBA property was purchased in 1965.

A former sludge pit used by the refinery to dispose of by products was located in the northwest corner of the WBA property. The pit location is evident in an aerial photograph taken in 1951 but is not identified in a 1960 photograph.

According to the report, "Narrative Report for the Site Investigation of Wichita Brass and Aluminum, Wichita, Kansas" (prepared by the United States Geological Survey in 1985) and interviews with Mr. Carter, a solvent

4.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

4.1 REGIONAL GEOLOGY

The 29th and Mead Site is located in Central Sedgwick County. The majority of Sedgwick County occurs in the Arkansas River Lowlands section of the Central Lowland Physiographic Province (see Figure 10).

The geologic units which outcrop in Sedgwick County are of sedimentary origin and range in age from Permian to Recent (see Figure 11). The oldest formation present is the Wellington Formation (see Figure 12) of the Permian System which forms the bedrock under the eastern four-fifths of the county. The Wellington Formation consists of calcareous gray and blue shale containing several thin beds of argillaceous limestone, gypsum, and anhydride. The Ninnescah Shale, also of the Permian System, overlies the Wellington Formation and forms the bedrock surface in the western one-fifth of the county.

Unconsolidated deposits of clay, silt, sand, and gravel ranging from the Pliocene-Age Ogallala Formation to Recent Age unconformably overlie Permian-Age rocks (Figure 11). As shown on Figure 12, the contact between the Wellington Formation and the alluvium associated with the Arkansas River Valley generally trends north to south near the eastern edge of the 29th and Mead Site located east of the Arkansas River.

4.2 REGIONAL HYDROGEOLOGY

Permeable alluvium in the Arkansas River Valley is the primary source of usable groundwater in Sedgwick County. Domestic and stock wells in the Wellington Uplands Area, east of the Arkansas River Valley derive water from the Wellington Formation (see Figure 13). Groundwater from the Wellington Upland Area adjacent to the Arkansas River Valley discharges into the unconsolidated sediments of the Arkansas River Valley.

The distribution of transmissivity within the unconsolidated sediments of the Arkansas River Valley is illustrated in Figure 14. Values of transmissivity range from near zero at the boundaries of the Arkansas River Valley to 250,000 gallons per day per foot (gpd/ft) where the thickness of the unconsolidated sediments is at a maximum. The 29th and Mead Site lies within these alluvial sand deposits. Transmissivities between 40,000 and 100,000 gpd/ft are expected in the alluvium present on the Site.

4.3 SITE STRATIGRAPHY

The 29th and Mead Site stratigraphy was determined from drilling logs prepared during installation of soil borings and monitor wells performed as part of this project and from available literature for the area. The stratigraphy at the 29th and Mead Site is characterized by the following in ascending order from oldest to youngest (see Figure 15 for east/west geologic cross section).

- Medium to dark-gray, weathered shale bedrock of the Wellington Formation.
- Unconsolidated, light brown alluvial sand lies above the shale bedrock with a thickness of approximately 30 feet. This lithologic unit grades upward from a coarse-grained sand with traces of gravel to a fine to medium-grained sand.
- Alluvial clay with a fine sand lies above the sand unit and extends to the surface, approximate average thickness is 10 feet.

A top of bedrock contour map was constructed using CPS-PC™ computer modeling software (see Figure 16).

4.4 SITE HYDROGEOLOGY

The water bearing unit at the 29th and Mead Site consists of the unconsolidated alluvial sediments of the Arkansas River Valley which overlie shale of the Wellington Formation. This unit consists of sandy clay, clayey sand and sand. Water levels (see Table 3) measured in the on-site wells indicates that groundwater exists under unconfined conditions at the site.

The elevation survey data for the existing on-site monitor wells and new monitor wells screened at the water table (Table 2) were entered into CPS-PC™ model software to construct a groundwater gradient map (Figure 17). As depicted in Figure 17, depressions in the water table show the influence of Evcon recovery well RW-1 (near 37th Street and Santa Fe), the Evcon north and south industrial wells (between 33rd Street and 30th Street on Mead), and the OSHE Meat Company industrial well (between 25th Street and 21st Street near Broadway). The well with the greatest influence appears to be the OSHE Meat Company industrial well. The map suggests that there may be active pumping wells in the area around wells WND-5 (Block 10) and

GLM-14 (Block 7), however, the configuration shown is a function of measured water levels and the mathematical algorithms used by CPS modeling program.

The general groundwater flow across the site is from north/northeast to south/southwest. As described above, the pumping wells have an influence on the local groundwater flow direction and gradient within the 29th and Mead Site.

4.4.1 GRAIN SIZE ANALYSIS

4.4.1.1 Shallow Part of the Aquifer

Samples were collected during the drilling of the 32 soil borings as described in Section 3.1.1 at depths ranging from one to five feet below the water table for grain size analysis to represent the shallow part of the aquifer beneath the 29th and Mead Site. The samples were analyzed by Engineering Testing Company. The reports of grain size testing are included in Appendix G.

During installation of monitor wells during the long term monitoring program, soil samples were collected from the shallow part of the aquifer in WND-24 (Block 2), WND-22 (Block 19), WND-26 (Block 8), and submitted to Layne Western for grain size analysis. Results of the grain size analysis are presented in Appendix G. The grain size analyses indicate that the predominant aquifer grain size in the upper portion of the aquifer is very fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the plots of representative grain size analyses, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90 percent of the sample is retained on a screen. The hydraulic conductivity of the shallow part of the aquifer was estimated to range from 0.016 centimeters per second (cm/s) to 0.068 cm/s. This range is consistent with expected values based on aquifer transmissivity.

The velocity of groundwater flow for the shallow part of the aquifer can be determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 20 percent effective porosity was assumed and used (Freeze and Cherry, 1979). The hydraulic gradient was calculated from the groundwater gradient map (Figure 17) for the area bounded by 29th Street, 25th Street, Ohio Street, and I-135. This area appears least effected by the influence of pumping wells in the 29th and Mead area. The unaffected hydraulic gradient is calculated to be 0.0012 feet per foot. Based on the parameters outlined above, the groundwater flow velocity in the upper part of the aquifer ranges from 0.27 ft/day to 1.16 ft/day.

4.4.1.2 Deep Part of the Aquifer

Samples were collected at depths ranging from one to five feet above bedrock for grain size analysis during installation of monitor wells WND-22, WND-24, and WND-26 to represent the deep part of the aquifer beneath the 29th and Mead Site. Samples were submitted to Layne Western for analysis. Results of the grain size analysis are presented in Appendix G. These analyses identify the predominant aquifer grain size to be fine to very coarse sand as defined by the Wentworth Scale.

Utilizing the the grain-size plots, hydraulic conductivity (k) was estimated based on the square of the grain size, in millimeters, at which 90 percent of the sample is retained on a screen. The hydraulic conductivity of the deep part of the aquifer was estimated to range from 0.058 cm/s to 0.068 cm/s. This range is consistent with expected values based on aquifer transmissivity.

The velocity of groundwater flow for the deep part of the aquifer was determined by multiplying the hydraulic conductivity and hydraulic gradient, divided by the effective porosity of the formation (Freeze and Cherry, 1979). For this determination, 25 percent effective porosity was used as representative for sands (Freeze and Cherry, 1979) in the lower part of the aquifer. The unaffected hydraulic gradient was assumed to be the same as the water table gradient in the area bounded by 29th Street, 25th Street, Ohio Street, and I-135.

The hydraulic gradient for the deep part of the aquifer is assumed to be 0.0012 feet per foot. Based upon the parameters outlined above, the groundwater flow velocity in the lower part of the aquifer ranges from 0.79 ft/day to 0.93 ft/day.